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DARSHANA INTERNATIONAL

Vol. 3 1963

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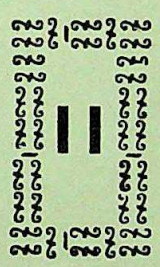
OF

PHILOSOPHY, PSYCHOLOGY, PSYCHICAL RESEARCH, RELIGION, MYSTICISM & SOCIOLOGY

गुरुकुल काँगड़ी

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MORADABAD (India)



Volume III August 1963 Number 3

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DEDICATION

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THIS ISSUE OF **DARSHANA INTERNATIONAL** IS RESPECTFULLY DEDICATED TO DR. ROBERTO ASSAGIOLI, AN ITALIAN PSYCHOLOGIST AND PHILOSOPHER WHO HAS GIVEN BIRTH TO A NEW MOVEMENT IN PSYCHOLOGY WHICH TENDS TO BRIDGE THE GREAT GULF BETWEEN INDIAN AND WESTERN SCIENCES OF MIND VIZ., **PSYCHOSYNTHESIS**. HE IS WELL ACQUAINTED WITH BOTH THE WESTERN AND THE INDIAN PSYCHOLOGIES AND HAS VERY BEAUTIFULLY SYNTHESISED THE CONCEPTS OF THE UNCONSCIOUS OF THE DEPTH PSYCHOLOGY OF THE WEST AND THOSE OF SUPERCONSCIOUS OF THE HEIGHT PSYCHOLOGY OF THE EAST. MAY HE LIVE LONG TO MAKE HIS IDEAS SUFFICIENTLY STRONG AND LIVING.

J. P. ATREYA
Managing Editor *'Darshana International'*
MORADABAD (INDIA)

Dr. Roberto Assagioli :

Dr. Roberto Assagioli was born in Venice in 1888. He took his Medical Degree M. D. at the University of Florence, specializing in neurology and psychiatry and pursuing at the same time psychological and philosophical studies. Later, he was the editor of the periodical 'Psyche' His clinical experience in various techniques of psychotherapy (suggestion, persuasion, psychoanalysis and various active techniques) led him to elaborate a new and comprehensive method aiming at the integration or reconstruction of the personality. This method, is called **psychosynthesis** he not only applies to patients but also uses and teaches it as means of education and self-realization. In 1926, he founded in Rome, the first Institute of Psychosynthesis known as "Istituto di Psicosintesi" In the year 1938 to was compelled to close the Institute. After the war the institute was reopened in Florence. The spread of the principles and methods of psychosynthesis has been increasingly rapid and extensive during the last few years. Indian Institute of Psychosynthesis is being established at Kuthal Gate (Atreya Niwas), Rajpur, Dehra Dun, for propagating the ideas of Dr. Assagioli. As a writer and lecturer Dr. Assagioli has travelled widely through France, Switzerland, England, Holland and the United States. His essays and articles, some of which have been translated into eight languages, number more than three hundred.

His professional activities are mainly devoted to the "didactic psychosynthesis" of medical doctors, psychologists and educators.

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EDITORIAL

WHY SHOULD THERE BE DARSHANA INTERNATIONAL ?

THERE are several different questions one might have in mind when asking "Why should there be *Darshana International*?" But certainly the most natural and important question these words suggest is this: "What **Justifies** the existence of *Darshana* ?"

Now the question that I am asking is a **species** of the last question. It is a rather peculiar species of it.To come to the point at once, I am asking: "From the standpoint of a contemporary American philosopher, what—if anything—justifies the existence of *Darshana* ?" I shall try to answer **this** question (taken in the sense I have outlined) as honestly as I can.

On first considering the question that I have asked a great many contemporary American philosophers would be inclined, I think, to answer in the negative. They would feel like saying. "Not only is there no reason for *Darshana* to exist—there is good reason for it not to exist." What would motivate this sort of response would not be anything lying outside philosophy but **purest philosophy** itself. What would motivate it would be a **definition** of philosophy.

The term 'philosophy'possesses in contemporary American philosophical circles a connotation that is both exceedingly circumscribed and firmly entrenched. Certain sorts of inquiry and only certain sorts (more easily recognized than defined), constitute philosophy and nothing else does. This very circumscribed view of the nature of philosophy comes not at the beginning but at the end of a long historical process, and consequently it seems to its adherents to constitute a discovery rather than a mere operating principle. For example,they will say that in the European Renaissance almost anything counted as philosophy and in almost any admixture: theology, natural science **bona fide** and **non-bona fide** (astrology, alchemy, black magic), metaphysics, mysticism, logic (**bona-fide** and purely fanciful), psychology, psychical research, etc. They will say that the major thinkers of the 17th and 18th centuries perceived and made it clear that theology, the **non-bona fide** natural sciences,mysticism, psychical research, etc., did not belong to the proper domain of philosophy; that the thinkers of the 19th century disclosed or had disclosed to

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them the fact that the natural sciences did not either (but were either above or below philosophy); and that today the question even arises as to whether metaphysics and logic belong to it or not. In short, the current American view concerning the nature of philosophy is something like this: philosophy possesses a pure essence. In the past this pure essence was encrusted with all sorts of accidental attachments and excrescences. One of the tasks and triumphs of Western thinkers has been to separate the pure essence of philosophy from its encrustations of the non-philosophical. Precisely what this pure essence consists in remains perhaps a 'mystery wrapped in an enigma'; but at least it is now pretty clear as to what it does not consist in; and those are most of the things that are listed on the cover of *Darshana*. This, I say, is the way that many—perhaps the majority of—professional philosophers in America now conceive the nature of philosophy. And they do so, even though in some cases it is at the expense of some inconsistency with their own premises. For instance, many contemporary American philosophers would agree with Wittgenstein in his claim that particular things (e.g., particular games) do not form sorts or kinds (the class, 'game') because of some common essence which they possess but because of family resemblances. At the same time, these same philosophers can be found maintaining as vigorously as any others (indeed, sometimes even more vigorously) that philosophy possesses a pure essence and that all philosophizing must lie within the boundaries of this pure essence.

Now when an American philosopher first considers *Darshana* (as I was saying), he will tend to view the journal in the light of the definition of philosophy which I have described above, and hence, he will be inclined to say, "But look at all these odd bedfellows *Darshana* puts in with philosophy: psychology, psychical research (!), religion (!!), mysticism (!!!), and sociology (!!!!). How shameful ! And look at all the odd sorts of philosophy—where there is philosophy—one finds in its pages, and sometimes even mixed up with those other things." And he will go on to say to himself, "Every discipline should be kept pure and apart from others. *Darshana* has no modesty whatsoever; the journal is perfectly promiscuous. Should it exist ? I should say not !"

It can be seen, no doubt, that I am in part poking fun at the current dogma concerning the nature of philosophy which most American philosophers subscribe to. But please let it be understood: first, that in doing so I am poking fun at myself too (for what I have written above is just as autobiographical as descriptive of other minds): and second, I am not suggesting, in doing so, that the current American view is necessarily wrong. I myself am inclined to think it is right; and that philosophy is a very peculiar and special sort of discipline, which is different from other disciplines and should be kept distinct from them (and I am also inclined not to think this way too). What I am poking fun at is the doctrinaire, unquestioning acquiescence that many American philosophers,

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including myself, give to our narrow definition of philosophy. Our definition may be correct; but the point is--it is certainly not clear that it is, and we are rather presumptuous in acting as if it were clear. Orthodoxy is not necessarily odious or wong; but a supercilious and smug orthodoxy is; and I am afraid that the latter describes our present American orthodoxy on the nature of philosophy.

It is exactly in this connection that I would now like to maintain that, from the standpoint of an American philosopher, the existence of *Darshana* is justified. The definition of philosophy that *Darshana* embodies (and, I imagine, that most Indian thought embodies)is characterized by its permissiveness, its readiness to treat anything that purports to be philosophy as philosophy,to put philosophy into bed with all sorts of bedfellows, not surreptitiously(which often enough happens in America), but deliberately and publically, It is thus a definition of philosophy that is at the very opposite pole from the current American definition.

Nothing could be more absurd than to suggest that American philosophers give up their narrow definition of philosophy (which most of us, for various reasons, find true and rewarding) for the much broader definition embodied in *Darshana* and Indian thought.But it is not absurd to maintain that, looking over the shoulder of *Darshana* (as it were), American philosophers might also find this broader definition rewarding; and that, in any case, they ought to look over the shoulder of *Darshana*. And here I should like to borrow a thought from Professor Hocking's penetrating article in the January (1963) issue of *Darshana*, "The Values of Variety and the Necessities of Unity." Professor Hocking suggests that we define "a nation as an experiment in law-making" (p.5). if we do, his point is, then we can understand the value of there existing different bodies of laws.To begin with,each nation possesses its own peculiar institutions and customs ("There is no such thing as a word custom"), so that 'a suitable body of laws' is best conceived in national terms (for laws will have to take into account customs and other particular features of national existence). At the same time, certain laws that a particular nation proposes as the answer to its peculiar problems may turn out to provide a solution to the problems of other nations or even all nations. Hence, if each nation keeps its eye on the law-making experiments of its neighbors it may profit in ways that it could not if it did not remain cognizant of the law-making experiments of other nations and groups or if no such experiments were taking place.

It seems to me that a similar argument might be made with respect to the definitions that particular nations and groups of nations and particular circles within those nations and groups arrive at concerning the nature of philosophy. One might at least maintain that since it is not certainly known what is the correct definition of philosophy, extant but different definitions should be construed as experiments in philosophizing. Viewed from this perspective, the philosophizing (broad defi-

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nition)that goes on in *Darshana* should be of interest to American philosophers (however narrow their own definitions of philosophy), for conceivably, they might (but need not) discover elements of philosophizing which they would want to incorporate in their own philosophizing.

We might then conclude that, with respect to definitions of philosophy, it is not a matter of "The king is dead; long live the new king;"but rather something like this "*Vive* the American and English definitions of philosophy ! *Vive* the continental European definition ! *Vive* the subspecies that fall under these: the logical empiricist, the existentialist, the phenomenologist, the scholastic, the personalist, the rationalist, the idealist, the materialist's ! And *vive* the Indian definition of philosophy (*Darshana*)!"

John O. Nelson

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CAN MODERN BUREAUCRACY BE CONTROLLED

HENRY WINTHROP

THE bureaucratization of modern life has called forth in our time a large volume of criticism. Voices of protest have been particularly concerned with its spread, above all, throughout the functions of modern governments. The basic issue which has been raised in this connection is the question of whether this sprawling phenomenon in government can, in any way, be controlled. The purpose of the present essay is to suggest **possible** methods of control. Although its frame of reference is the United States, the ideas suggested here are equally applicable, with slight modifications made in order to adapt them to the institutions of other countries, to democracies elsewhere. The problem is a genuine and a pressing one in the twentieth century and eventually will have to be faced wherever democracy still survives and is struggling to ward off either the embraces or the attacks of totalitarianism.

BUREAUCRATIC INDIFFERENCE FROM WITHIN

The political loss of democratic choice has, as we know, been accomplished by transferring the right to make decisions to experts in industrial bureaucracies or governmental ones. At the same time it must be recognized that both strong and moderate reciprocal influences between these two are fairly common. If business makes decisions which commit the average citizen to a behavioral repertoire from which there often appears to be a point of no return, this could **in principle** be reduced somewhat if the capacity of the government agency to influence modern business enterprise were properly exploited on behalf of a democratic, political altruism. This would entail, however, a more realistic popular control of government agencies and institutions. Such control is, of course, our democratic right for we are all investors in the institutional enterprise we call government, our common stock being the vote and our margin being constantly covered by increasing taxation. Our basic task then is to find a set of methods by which government bureaucrats can be more readily placed under popular control and, in addition, decision-making by experts can be more readily submitted to popular but enlightened review. If such methods could be found not only would the citizen have a say in what he can do and consume but—and, I think, most of us would agree that **this is even more imporant**—he would have a say in what he can be. The first question I should like to examine is why it is so difficult to recapture a governmental bureaucracy for popular ends, particularly where these ends are concerned with the restoration of more choice and decision-making to citizen control, I should like to examine some of the reasons for this at this point.

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Typically what do the representatives of a bureaucratic agency do when they are under fire for their activities and procedures. Rationalizations and justifications will be put forward in defense of both. If, however, these fail to cushion the impact of failures and borners, and perceptive critics who have looked into the sins of commission and omission are not taken in by defensive smoke screens, responsible agency heads will be forced to modify agency procedures. These modifications will be carried out half-heartedly. Officially a new leaf will be turned over. Revisions of printed rules of procedure and transformations of objectives will formally govern the expression of official contrition. Nevertheless informal execu tion of the case load will be as close to the original program and procedure as bureaucratic inertia will demand, and public inability to inspect, alleged changes on the spot, will allow. Ego-involvements have strange ways of rearing their ugly heads and the general atmosphere created by bowing to public criticism will be somewhat reminescent of the adage *"plus ca change, plus c'est la meme chose."*

However, it would be a great mistake to assume that all the bureaucratic havoc which mocks the average citizen is the creation of top echelon functionaries. Decision, choice and initiative for the citizen can also be curtailed by "bureaucratic low men on totem poles." Anyone who has ever worked for the United states Federal Civil Service is soon made aware of the fact that the initial stages of Bureaucratization are created frequently by the lower rather than the higher echelons. It is here that the bottlenecks to communication are created in a manner quite undreamed of in the work and research of management specialists and social scientists who pride themselves on their. thorough knowledge of communication problems in industry. Learned tomes have been written on the role of formal and informal structures and on communication patterns in task-oriented groups. Rarely, if ever, do these mention the disruption to communication between an agency and the citizens it serves, brought about by those at the bottom of an agency's employee hierarchy. Many a citizen who has wondered why a simple question, addressed to a governm-ent agency, has not been answered for six months, and who automatically assumes he has stumped a bureaucrat, would be surprised to learn that this defeat was much more prosaic than this. He has probably met his Waterloo through a mail-distribution clerk who misrouted his important correspondence or who left it at the bottom of a basket for months. One level above this we have the correspondence clerk who frequently fails to understand the problem presented by a correspondent, particularly if the problem is not a routine one, and who, even when he or she does understand the problem, frequently fails to deal with it properly because of the intricacy of the applicable regulations which are frequently beyond his or her depth. Separate studies have been made and many more will certainly appear with the passage of time, on the breakdowns

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in communication which result from governmental *gobbledygook*,[1] but such matters require separate treatment and will not be taken up here. They are not emphasized in such work as that of Merton et al (4) or Blau (1).

To return to our lower echelon personnel, however, one level above the correspondence clerk we have the minor functionary—the accountant, attorney, economist, Junior personnel officer, social analyst etc.,[2] who often have only a nodding familiarity with the industrial situation or social problem with which they are called upon to deal. The reader need not think that this is an exaggeration. The accountants are legion who pass judgement upon an industrial cost situation and who have not the least inkling of the technologies and prime costs involved, who have never visited representative establishment in the industry involved, and who have never stirred up enough interest even to look at a flow-sheet of the industrial processes bound up with the cost picture which they seek to check. Federal agencies are full of attorneys who defy the average citizen to scale the mountain of legal, multiordinal terms with which the choice-making and decision-making functions are surrounded, and connect with reality if he can. Attorneys tend to be completely conditioned by the ambiguities and stratospheric aspects of legal language, a language which, because it consists chiefly of what Morris (5) would call designative-incitive discourse, makes it easy to stray far from the social roots of the problems with which it deals. Attorneys as a group, tend to be highly unimaginative (an outcome, I imagine, of the verbose legerdemain of the profession, itself; rather than a selective, psychological phenomenon) and as a result, they are not likely to see the human aspects of the situations with which they deal. Nor are they likely to see in imagination some of the ways in which their administrative decisions and choices interfere with the democratic birthright of the citizen-correspondent. Nor do they worry about the manner in which the ukases in which their decisions and choices are couched, filters down the communication ladder and becomes subject to distortion by misinterpretation. The further the number of removes between the decision-maker and his citizen-subject, the more likely is the terminal action which falls upon the citizen to be quite irrelevant to the problem or need which began the relationship in the first place.

Economists who serve governmental bureaucracies are still essentially capitalists without money. They have the disadvantage that, unlike the economist in industry, they have rarely seen an industrial establishment and their knowledge of the given industry frequently extends only from cover to cover of various books and other printed matter. The descriptive and institutional economist may have some sense of the historical growth of a given industry but he rarely perceives the organic unity

1. An American pharse for governmental, civil service jargon, whose chief attributes are both lack of candor.
2. These, of course, are the titles of fairly common positions in the United States Federal Civil Service.

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which underlies the activities of its most representative establishment. If the economist is essentially a data-compiler, a table-producer, an index-computer or is concerned with other **data-after-the-fact** considerations, he is even more likely to be out of touch with the rich plenum of events which intersect the life of the working citizen, regardless of whether that citizen is from management or labour. If he is an administrative economist, concerned with making decisions which affect the lives directly of both the employee and the consumer, he is likely to specialize in a few limited phases of the administrative law governing some Federal legislation, with the result that he is least likely to see or be interested in the extent to which a routine decision he makes reverberates and occasionally produces unwanted and unpleasant impacts upon the lives of individuals who he never suspected were within the compass of this influenced. Our most realistic type of economist is the individual technically trained in linear programming or in some other phases of operations research, and this type of individual is not likely to be in administration but rather in research. Further more, this type of economist is not likely to be among that group of government bureaucrats whom we have labeled "minor functionaries". Our economists in this category are afflicted with **too much,**"tunnel vision," so that the break down in communication which perverts choice and decision-making is conspicuous by its presence.

These then are the categories in our lower echelons—mailroom distributors, correspondence clerks, low status analysts, professionals in very minor administrative posts, such as accountants, attorneys, economists, personnel officers, and incumbents in many other minor occupations too numerous to mention. It is these incumbents who,in the name of efficiency, like nothing better than to **routinize and classify cases** (a normal, human failing) so that the individual and situational variations which provide the fulfilness of our lives are overlooked. These are the individuals who inevitably get so used dealing with people **as abstractions** that they may be said to earn their bread and butter by alienating themselves from man and society. Eventually they lose all capacity for **Sorgs** or care, which is so basic an attitude between man and man in the existentialist out look. It is the individual and the particular which one is faced with in choice and decision. Abstractions are only the artifacts of intellectual and social organization. The bureaucrat is functionally the specialist par excellence in what existentialist philosophers call the realm of essences. A calling sometimes betrays this outlook unintentionally as when members of the legal profession smugly quote "*Lex de minimis non fit*" the law is not concerned with trifles. How very revealing this adage this. In the name of general principles and abstractions, used as Procrustean beds, we torture the individual citizen's special problem and plight until it can be fitted to the high-flown, rootless categories of legal phraseology. Curiously enough almost all of the encroachments upon the democratic

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ideal of allowing the citizen to enlighten himself and participate responsibly in the democratic process, have been made in the name of abstractions and *ad hoc* general principles. This is precisely what Fromm(2)means by alienation when he says.

"The problems of the manager opens up one of the most significant phenomena in an alienated culture, that of *bureaucratization.* Both big business and government administrations are conducted by a bureaucracy.Bureaucrats are specialists in the administration of things **and of men.** Due to the bigness of the apparatus to be administered, and the resulting abstractification, the bureaucrat's relationship to the people is one of Complete alienation. They, the people to be administered, are objects whom the bureaucrats consider neither with love nor with hate, but completely impersonally; the manager-bureaucrat must not feel, as far as his professional activity is concer ned; he must manipulate people as though they were figures, or things. Since the Vastness of the organization and the extreme division of labor prevents any single individual from seeing the whole, since there is no organic, spontaneous co-operation between the various individuals or groups within the industry, the managing bureaucrats are necessary; without them the enterprise would collapse in a short time, since nobody would know the secret which makes it function. Bureaucrats are as indispensable as the tons of paper consumed under their leadership.Just because everybody senses,with a feeling of powerlessness, the vital role of the bureaucrats, they are given an almost godlike respect. If it were not for the bureaucrats, people feel, everything would go to pieces, and we would starve. Whereas,in the medieval world, the leaders were considered representatives of a god-intended order, in modern Capitalism the role of the bureaucrat is hardly less sacred—since he is necessary for the survival of the whole.

Marx gave a profound definition of the bureaucrat saying: "The bureaucrat relates himself to the world as a **mere object** of his activity." It is interesting to note that the spirit of bureaucracy has entered not only business and government administration, but also trade unions and the great democratic socialist parties in England, Germany and France. In Russia, too, the bureaucratic managers and their alienated spirit have conquered the country. Russia could perhaps exist without terror—if certain conditions were given—but it could not exist without the system of total bureaucratization—that is, alienation."(pp. 126-7.)

These routines of so-called efficiency in the name of which the bureaucratic functionary sins against a **proper feeling** for the democratic process and for the real spirit underlying the phrase, "the right to life, liberty and the pursuit of happiness," are reinforced with that lack of sympathy, imagination and concern, which the European social critic has often referred to as the *petit bourgeois* mentality and morality. All of these minor functionaries are at various rungs beneath the policy-making levels. As a result decisions which should and frequently would be expected of individuals of high intellectual calibre, because they entail much responsibility and often serious consequences for large masses of people, are often handled by minor functionaries who are all too frequently unfit for it. Judgment which should be rendered at top level is often not

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done so because of the inability to enlist the understanding or good will of an officious underling. The citizen's choice then becomes the mediocre civil servant's whim.

It is, then,in the lower ranks of a bureaucracy where the least competency reigns, the greatest quota of errors and the maximum indifference to the consequences of one's actions. What is it that interferes with the possibility of manning the lower ranks with top calibre people? Here we are involved with the matter of status considerations.The typical on going bureaucratic agency invests the positions in the lower levels of its table of organization with less status and less salary. There are a few ways by which this custom could be changed with benefit to all.If a deliberate public and professional policy was pursued, supporting an educational campaign to demonstrate the many grave responsibilities which may be part of a lower echelon position, this would help somewhat. Such an educational campaign should be reinforced by pointing out the consequences which may arise from mistakes of judgment at this level and the actual, reverberating effects of bad judgment on different sectors of the body politic. This may make a dent after several years of emphasis. If to the preceding we could add the practise of permitting a representative from lower echelon personnel to sit in regularly on committee policy -making, since administrative procedures are so fundamentally meshed with policy, this would add its increment to improving the quality of the service rendered by incumbents of lower rank.Such representatives would, of course, be given the creative function of working out the manual of procedures for their level and would be allowed to take charge of in-service training for the proper discharge of the duties of personnel in minor positions.

They might in addition be able to suggest from their vast experience some of the pitfalls which exist for the implementation of changing policy and provide procedural devices for forestalling undesirable outcomes of administrative functions. One of the objectives of the in-service training course just mentioned would be to familiarize minor functionaries with the nature of all the agency's functions. By seeing how these mesh with one another and by being made fully aware of the social functions these serve, any assistance given by a minor administrative hireling in being allowed subsequently to participate in policy-making, would thereby be of greater value. At the same time it might sensitize personnel to the urgency of reducing the extent to which the administrative assistant encroaches on the freedom for action and the needs of the everage citizen. An even more fundamental way by which status and salary differentials might be eliminated between all levels in an agency table of organization would be to rotate selected personnel between these levels. This would be most effective if it were an annual or biennial feature, with rotating personnel from a special and separate pool of talent whose salary differentials overlapped the range from the ceiling of the lower level to the floor

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of the policy-making level. If half the membership of this special pool served at any one time in what is ordinarily taken to be the lower ranks while the other half served in policy-making positions, this would tend to blur the unwanted distinction of rank. It would make the situation ambiguous for those who were most comfortable highly structured situations but given enough exposure to the practise, adaptatiov to it would surely occur. Above all this would engage ability at all levels of bureaucratic concern. The payoff on any such proposal is the expectation that officiousness, irresponsibility and unconcern for the options of the citizen might diminish as a result of such experiences. In turn this might give rise to a reduction in the passion with which the typical top bureaucrat seeks to aggrandize an agency's powers by narrowing down still further the area of choice for the citizen. With increased intelligence and maturity operating at the public-contact end of the agency's activities, we might expect fewer errors, less featherbredding and an increase in the notion that the civil servant is a public servant rather then a member of an insulated, untouchable elite whose greatest pleasure is to treat people as cases and their problems as routine bores. Above all it might result in the much-belated recognition on the part of public servants that their function is definitely not to plan the good life for us, or any significant part of it but only to implement it.

ROAD BLOCKS TO BUREAUCRATIC ENCROACHMENT

However, it is to be emphasized that whether the proposed types of change which citizens might want to institute were similar to the minor reforms just described or amounted to changes of an even more basic nature, members of the existing bureaucracy would resist such proposals. Even if they were completely accepted, however, they would prove to be insufficient. Any effort short of decentralist ventures, to restore choice and decision making to the citizenry, with the intention of reinvigorating democracy with some of its pristine expectations, is going to reguire genuine institutional innovation. Whatever these innovations may eventually prove to be, in order to push them through, they will require understanding, concern, time, energy and devotion from that elite, protestant block of the American citizenry, which wishes to roll back the ground unnecessarily captured by creeping bureaucracy. This same group also wishes to redirect the social impact of science and technology so that the areas of required future choice and decision will still remain in the hands of the democratic, body politic. I should like to address myself to a sketchy outline of only one possible set of innovations which may be in order.

In the operation of administrative law it is my conviction that the chances for the citizen to exert pressure for change will be slim unless a citizens' loby is set up which has appointed committees whose basic duties will be to study the workings, influence and decisions of administrative agencies, themselves. Such review functions should be acceptable both to Congress, the voters and administrative functionaries, themselves.

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One such type of committee should be free to study, through representative members of the legal profession, itself, who have no type of financial or psychological investment of any sort in an agency under scrutiny, aspects of that agency's function. Such a citizens' committee, via its own appointed attorneys, should be free to study the need for a restatement of the law governing the agency's activities. The possible need for such restatement should include the right of advisory review of both the legislation which gave rise to the agency's functions and the administrative procedures, legal and otherwise, through which such an agency executes its responsibilities. Following the termination of such study, such a committee should be given the privilege of being the executor of at least the first draft of a needed restatement of the law and any required new or modified legislation which appears to be suitable. Even more to the point would be the recognition of the value inherent in allowing a body of attorneys,operating for a citizens' council to frame such needed restatement and legislation from beginning to end. This does not usurp the function of our national lawmakers for they will frame final passage of the required legislation. However, this does give the citizen the opportunity to compare the corrective legislation which attorneys,operating on behalf of the democratic voter,felt was required,with that framed by our national lawmakers. In short order it would be possible to determine whether our legally elected representatives were truly representing private or public interests.The passage of legislation concerned with new business facing the national community would still be the prerogative of our bicameral legislature, but continued contact with the work of citizens' council comittees, of the sort we are describing, would very likely be sufficiently educational to result in capturing both the spirit and the product of genuine, democratic thinking as this has been reflected through the operation of such councils. This too would be all to the good in the restoration of democratic esprit.

Such study and restatement as we have been speaking of, would have to be accompanied by radio and television programs which are furnished as a public service, jointly paid for hopefully by (both the citizen councils and privately owned stations, themselves. Clearly the financing is not a basic consideration in this matter, for I feel confident that supporting funds could be raised by citizens themselves, if total support was forced upon them. The function of such public service programs would be to educate the interested sector of the public in the findings of such watchdog committees. In this way public under standing of the problems and issues involved and of the undesirable states of affairs which require mitigation, would be ensured. At the same time public support would assuredly be enlisted for the needed change, a support which our national legislators cannot afford to ignore or buck.

Committees operating on behalf of citizens' councils and a citizens' lobby need not, of course, be composed solely of attorneys. The trained

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and informed lawyer is without question the best party to entrust with drafts of required legislation, itself. Prior, however, to the framing of the advisory legislation,the study of the issues and problems involved and the social pathology which has been created by poorly thought out previous legislation and maladroit administration of the same, would involve other types of specialist. Economists, accountants, tax experts, behavioral and social scientists, natural scientists,technologists and social philosophers—these and many other types of expert can be enlisted to do the required spadework of such committees. This should be clearly understood. The attorney is in a position to code needed legal changes and to recommend forms,agencies and procedures which implement these. He is not, however, the most suitable expert for digging into the causes of social and institutional difficulties and into the genesis of social pathology, nor is he in a position to apply the methodological skills of the social scientist or to forecast the probable outcome of undesirable social situations and the legislation proposed to deal with them.These other types of expert are infinitely more important than the attorney in understanding the impact of science and technology on our lives and the degree to which these create situations that narrow the area for genuine participation in the democratic process.But when the question is asked, following the application of scholarship, "What is to be done?" then legal and political vistas are involved. It is then that we need the skills of the attorney who possesses wide-ranging interests and well-developed civic consciousness.

A preferred modification of the procedure already suggested would be to have a citizen's council share with Congress the responsibility for engaging competent personnel to reframe advisory law and administrative procedure. This would mean that both a citizen's lobby and members of Congress would be responsibile for different fractions of the total personnel of a reviewing committee.In this way not only would the ongoing work of such a committee be known at all times to members of the Congress but in addition our national lawmakers would always be in a position to make their own thinking felt through the committee members they, themselves, have chosen. One effect of such cooperation is that any final legislation recommended to Congress would result in a minimum amount of revision by our national lawmakers and meet with a minimum amount of resistance.This is quite obviously a consummation to be striven for, particularly when we realize that needed terminal legislation must be approved by these same lawmakers. Legislation recommended by a citizens' council meeting,consisting in part of personnel chosen by Congress, is not very likely to run completely counter to congressional thinking. By a procedure of this sort which would allow Congressmen to be briefed continually on the whole picture related to an area in which the citizen has been unnecessarily losing his democratic choice and decision-making functions, the distance between the legal objectives which will always exist on paper and the actual manner in which they are adminis-

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tratively carried out, should hopefully be reduced considerably. It is the existence of such gaps between legislation and administration, which has tended to make the consequences of bureaucratic inertia and administrative folly, reach points of no return.

A corollary, and a most vital one, to the type of reform which we have been describing, is to make absolutely certain that we enlist the help of the mass media of communication in educating the public to the differences, if any between the proposals made by a citizens' council functioning through,its own committee and those which are finally being considered for enactment into law. This would, of course, be done once the committee procedures of the Congress, itself, for framing new and needed legislation, has taken the ball out of the hands of the citizens' council committee. In order to do this most effectively, new educational devices and methods for use by the mass media,would surely have to be developed. I say this for the following reason. The social and political issues of our time are quite complex. The variables involved generally affect one another in such a way that they tend to give rise to complicated systems with positive and negative feedback. A proper analysis of the multivariate equilibria produced by the complex equilibrium relations of social processes, would generally require an appropriate background and be intellectually extremely taxing. It is this type of complex analysis which would ordinarily be intended for the scholar, and it would have to be cast into some simple form, with dramatic trimmings, for presentation via our mass media of communication. These media are not meant for intellectual strain, as presently used, but they await inventions of an auditory or visual nature which can get across the fundamentals of complex social issues and problems without loss of comprehension.It may be that some novel arrangements of visual materials,using teachniques of animation, diagrams, slides, pictographs, blackboard close-ups, montage devices,etc.,will do the trick.Whether new or old techniques are employed, however, they will have to be used in such a way that the enlightened citizen is given a fundamental grasp of basic issues and problems so that the choices before him for reinvigorating the democratic process are quite clear. Program presentations would, I suspect, rarely run past an hour and would probably be most frequently limited to half an hour. In any event the scheduled time would have to be a compromise between avoiding flagging attention and achieving a minimum but rounded intellectual organization of the basic issues involved.

Perhaps one of the most basic bureaucratic reforms which would aid in the recapture of lost democratic privileges from an entrenched bureaucracy, would be to modify **recall techniques** in such a way as to be applicable to appointed or civil service governmental functionaries. The objective of such a proposal is not to create insecurity for the administrator, but to make certain that incompetence, officiousness and bureaucratic irresponsibility towards the objectives of the democratic process,

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need not assume untouchability by hiding behind civil service tenure. A citizens'council with civic ideals and a humane bias could support review boards who,on a paid or voluntary basis—probably the latter—could review a policy-maker's record every two or three years. Its recommendations need not be binding on Civil Service officials but if such boards did their work well, their recommendations would surely be heeded. One way of dealing with incompetence which has been spotted is to inaugurate an operating principle which encourages the circulation of the elite. Incompetent underlings could be moved down for another two or three year period and competent underlings could be moved up, the entire circulation process being aided and abetted by an in-service training program.[3] Employees resenting the temporary demotion would be free to leave their posts but an effiicient civil service will have established the principle of *une carriere ouverte aux talents* and a reservoir for replacements will always be available.

There are, of course, some dangers in encouraging the circulation of a governing elite of administrative specialists. The application of the principle involved is difficult because this is a sensitive area, that is to say, they preserve of a competent, administrative elite is the last place in which we wish to risk the introduction of Jacksonian democracy. Techniques for recall would have to be of such a nature that politically disgruntled groups will not find it easy to interfere with good work which happens not to have pleased them, by recommending the demotion of one or more individuals. One way of meeting this danger is not to allow the review function of a citizen's committee to be exercised unless its proposed membership is acceptable either to agency officials, the Civil Service Board, interested members of Congress, or some combination of these three sources. In addition, if the composition of such review committees was constantly changed for each separate task of review and if their members were chosen because of their disinterestedness and freedom from political passions, this might make such a review function more acceptable to any agency involved.

All of the proposals we have made, as well as others which would be forth-coming along the same lines if enough dissatisfied citizens contributed their suggestions for possible control of bureaucratic,function would conspire to constrict areas of irresponsibility and incompetence by bureaucratic

[3]The object here is to do something to arrest the allegedly incurable third stage of "injelitis," described by C. Northcote Parkinson. This third stage is a dry rot stage in which bureaucratic incompetence. inefficiency and disaster have reached a point of no return. "Injelitis" is a neologism coined by this author to describe an attitude of an insecure and inferior supervisor to a superior underling, where the supervisor combines in himself a high concentration of incompetence and jealousy. The term "injelitis" is a fusion of the terms "incompetence" and "Jealousy." The phenomenon in question has been described in one of a group of satirical essays which were well received and have since become popular in Western, English-speaking countries. They appeared in a volume entitled PARKINSON'S LAW AND OTHER STUDIES ADMINISTRATION. Boston: Houghton Mifflin, 1957. 113 pp.

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decision-makers. For all of the proposed activities a citizens' lobby should provide funds for a regular program, via our mass media, to communicate the results of such reviews at irregular periods to the interested sector of our citizenry. In this way it would be possible to indicate the changes which are needed. At the same time the citizenry could be polled following such programs, to ascertain the degree of popular understanding and support of the issues involved, which had been achieved. All of our proposals would cost money. These costs, however, would be little compared to the costs of bureaucratic misjudgment and incompetence. On the other hand we would be derelict to our own democratic tradition if we put the cost of supporting such proposals on a monetary rather than on an idealistic basis or, at least, on a basis of democratic efficiency.

No doubt the proposals which have been made here are small potatoes compared to the vast area of reform needed to correct bureaucratic abuses. Undoubtedly there are numerous other innovations which can be proposed which are much more significant than those made here. Proposals of one kind or an-other, however, are in order. A democracy which prates about the degree to which the individual is allowed to participate in decisions governing his own fate but in which the realities prove to be otherwise, may pass a point of no return. Whatever institutions usurp the privileges traditionally set aside for the citizen in a democracy—regardless of whether the institution is a business corportion, a government agency, a church or a school—these have to be checked. Our basic point has been that choice must be restored to the citizen where it has been unnecessarily taken away. Much turns on this word, "unnecessarily," for if science, technology, urbanization increasing population and other important factors, appear to be making certain traditional, democratic ideals unrealistic, then we should face up to this fact. In this connection Hutchins[4] has shown some remarkable insight. He has simultaneously pointed out the need for reshaping our ideas of government in a society whose traditions are outmoded and whose technological drift produces hither to unfamiliar problems of community. The following passages from Hutchins make this quite clear in the present context. He says.

> "The prevailing view in this country has been, and probably still is, that government is a necessary evil and that our primary concern with it is to be sure that we are protected against it. This is to be accomplished not only by the Bill of Rights, but also by the separation of powers and the competition of other forces. The separation of powers makes government ineffective. It therefore helps to maintain vested interests. Or, if we regard government as simply one of the numerous agencies through which society accomplishes its aims—others being corporations and labor unions, for example—we pass easily to the conclusion that one of the functions of these other agencies is to compete with government and hold it in check. There is a respectable doctrine of pluralism, which I do not share, that looks on

4 Taken from the newsletter and house organ of an organization with which Hutchins is affiliated.

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society as a collection of warring groups, interests, agencies, and institutions,of which government is one and only one.It is often said that the guarantee of our freedom is the competition of these forces, and on this theory government by pressure groups, and only such government,is both free and democratic.

If one thing is clear it is that the idea of government as a policeman, referee, nightwatchman, or competitor with other forces is dead, and that the idea that all we need to ask about government is how we protect ourselves against it is deader still. This is as it should be. The world we are living in is totally new. It is most improbable that slogans that may have been appropriate to a simple, national, agrarian society in an invulnerable situation can have validity for the largest, most advanced, most powerful industrial society in a world from which invulnerability has vanished forever. Since the world is totally new, and since it has become so overnight, our ideas are obsolete or obsolescent. In every aspect of our lives, we are living without theory, or, what is worse, we are living on the debris of outworn or disproved theory. Our minds are like attics filled with abandoned and useless furniture. Think of the plight of the economists, whose whole "science" is based on the idea of scarcity. What can they do with a country whose problem is abundance? Think of the political scientists, who have taught us that the issue in politics is who gets what and how, and who now do not know how to defend democracy when it appears that perhaps other systems may get more cheaper and faster. Think of the scholars in jurisprudence, who have insisted for a hundred years that the law was the command of the sovereign and who do not know what to do with a world in which sovereignty is fading and the cry is for justice...

THE PRESENT STAGE of industrialization is totally new.What is new about it is that we have a commitment to the highest possible rate of technological change and the capacity to produce technological change on a scale and with a speed heretofore undreamed of. The obvious example of the terrifying implications of these developments is the arms race, where we make things because we can, not because we need them or believe that we can ever use them. But the high rate of technological change and our commitment to it affect every aspect of our lives. These phenomena raise questions about education, about the use of free time, about work as the principal occupation of our lives, about the meaning of work...

IT IS SURELY USELESS to hope that the horrors of technological change can be avoided and its advantages obtained by *laissez-faire* or by the uncontrolled impact of group on, group directed, by some modern version of the Invisible Hand,to the good of humanity. It would be folly,to expect collective bargaining,even on an industry-wide basis, to solve the problem of the unemployment that has resulted and will result from automation .Some agency charged with the responsibility for the common good must be in charge. That agency is the federal government. Its instrument is law.

Any such view of the inevitable role of government implies that the methods of selecting, constituting, and operating the government have got to be purified. When we think about politics, politicians, and government today, we do not think of institutions and persons devoted to the common good. We think of institutions and persons that are oppressing us and that will steal from us and cheat us if

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they can.Or at best we think of a tremendous,creaking bureaucracy, absorbed in its own rules and its own protection, entrenched in its own self-satisfaction, operating without regard to our interests.

It is useless to talk of government as the agency charged with the responsibility for the common good unless we can figure out how to get a government that has some chance of knowing what the common good is and how to achieve it. If, as Miss Adams recommended, we are to reconsider our institutions in the light of the needs of the present day, we are going to have to do more than the obvious things, like abolishing the electoral college and having political campaigns paid for out of taxes,we are going to have to find out how the members of the political community can learn together when a huge governmental machine stands in the way, when all communication to government is by pressure groups, when all communication from government is propaganda, when, in short, the government does not educate the people and the people cannot educate the government."

Our justification for furnishing the preceding lengthy quotation is that it emphasizes for us some of the factors which, in fact, do make several of the traditional ideals of democracy unrealistic.It thereby suggests those areas for reform which, if successfully revamped, might result in the restoration of the citizen's ability to participate more directly in choice and decision-making.The factors upsetting to pristine concepts of democracy, as these have received expression in the writings of political thinkers,from Aristotle to the Founding Fathers, are such as could never have been dreamed of by those for whom democracy was a passion rather than a way of life. The world is, as Hutchins declares, totally new. It is impossible to trade in the old model for the new.Much of the conceptual baggage of agrarian type democracy is irrelevant, obsolete, obstructionist or ill-fitting. Democracy, as a political theory, was forged for economics of scarcity and yet its most passionate social testimonial must now be given by economics of actual or potential abundance,for which its present theoretical elaboration is somewhat incongruous. Lasswell (3) and other political scientists seem to be concerned with the distribution of goods and power, with who gets what size slice of the available economic pie and with who can change our consumption patterns most efficiently and disseminate them most widely.

But, as Hutchins says, if one conceives democracy in such terms, the political scientist will completely lose sight of its emphasis on creating a milieu in which the average man can actualize himself, making his own choices and decisions more frequently than current bureaucratic mass cultures are willing to allow. If he throws down the gauntlet in these terms,the political scientist will lose sight of the fact that the original intention of democracy was to provide an atmosphere for the favorable pursuit of a budget of values which enhanced our human stature and whose proudest accomplishment was essentially psychological in motivation, namely, to have its enlightened citizens burden themselves with matters which pointed to their own and posterity's future. The current spiritual concern of democracy is to forge those values, attitudes, ideas, inter-

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ests, ideals and levels of aspiration which would result in the machine becoming an extension of man rather than man becoming an extention of the machine and we use the word "machine" to cover not only instrument of production but also instruments of power, choice and decision-making. Hutchins therefore rightly remarks that if democracy is transmogrified and defended in terms of efficiency, power and consumption, than its champions and defenders will be thoroughly stymied before the challenge of non-democratic systems which may potentially be able to fulfill these more secular criteria more adequately, speedily and widely than we can do, ourselves.

Finally it is only too clear that the jurisprudential concepts of law-makers are fossil survivals in an age of science and technology. The law's basic concern is, I suppose, community stability and this is as it should be but when efforts are made to achieve this stability by the structuring and allocation of power rather than by the achievement of social justice in existentialist terms, then the law becomes a travesty, if it does not become an anachronism. But the forms of social justice for an age of accelerating science and technology, mass communication and mass culture, and an age in which bureaucratic blight seems to spiral everywhere, have not yet been invented. This is clearly one of the primary tasks for the coming Age of Abundance and, we hope, spiritual independence for the individual and for group cultures. The whole spirit of the law is shot through with the limitations of a mediaeval outlook in which the making of words and abstractions,the vicarious interpretation of these samehigh level abstractions, and the effort to compress life into static, logical molds, is seen as a rewarding activity as well as a socially useful one. This is our inheritance from the excessive philosophical rationalism and theological system-building of the past. Such **essentialist** symphonies of legal jargon cannot cope with the many forms in which science and technology make their social impacts. Systems of law are basically our modern forms of magical thinking, and legal forms and procedures our modern forms of ritual and ceremony. Eventually these systems, forms and procedures will have to be swept away to be replaced by social devices and safeguards that give easy access to the fruits of invention and their potential applicability to our lives, and which produce fluid institutions that perform their social function as they are supposed to do, without hardening into vested interests in power. Legal power, legal theories and some form of legal phraseology will still be with us, but as these bend to the social exigencies by science, technology and the scientific thoughtways, they will bear only slight resemblance to the power, theories and phraseology which has become our rationalistic inheritance of abstraction.

If we then find that certain of traditional,democratic ideals are unrealistic in age of science and technology, what are the choices before us? Shall we give up entirely these early ideals of our age of technological innocence? If we feel this is too complete a surrender then we face essen-

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tially the following two alternatives. Either we redefine democracy completely for the social and industrial complex created by a scientific and technological society or we stick to certain pristine, democratic ideals and look around for some practical way of translating the decentralist these into action for this same industrial and scientific complex. We cannot have it both ways, that is, we cannot expect to achieve the spirit of our early democratic ideals and still hope to preserve the advantages of a complex technological and scientifically-oriented society. In any case under either alternative we must try to obtain a set of social conditions and a sense community which restore social decision to the intelligent citizen.These will have to be social conditions and a sense of community which respect the integrity of the citizen as an individual,even more than they seek to influence his rubber-stamp approval or disapproval via the vote on packaged issues.In moving towards a resolution of these difficulties we can do no better,as arguments and counter-arguments are furnished by proponents of various proposals, than to remember the ancient adage "*Quo Urania ducit*"- wherever wisdom leads.

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SANE MAN AND SANE SOCIETY

ALFRED FARAU

A few days ago I saw a cartoon. A man lies on a couch, and his psychoanalyst says to him: "You are mentally healthy, and your problem is that you have to adjust to a sick society". This sounds amusing. Unfortunately, the situation is not quite that simple. If a society as a whole is sick, this society does not exist in a vacuum. There are, and there always were sane people, sane individuals in any sane society—but only in a sane society can the majority of the people develop a sane collective group spirit. This means that tonight we rather will have to speak about "Insane man in Insane Society".

The tragedy of our world today lies in the bancruptcy of social feeling. '*Gemeinschaftsgefuehl*",—the original German term for this psychological concept was introduced thirty-five years ago by Alfred Adler into modern Depth Psychology; as Adler explains it, it is a combination of social interest and cosmic feeling, and his concept was the first scientific proof of the basic fact of our life,well known through all ages to all great religions and philosophies: that man can find himself only by losing himself in a higher goal than himself alone. We human beings are forever confronted with this problem. We can accept the inevitable necessity of social feeling, or we can run away from it. However, if we run away, it still remains a problem of society. But society is never a problem of isolation. For man is a social being. And if we here it said of someone who is "isolated" that he is an "egotist", this is erroneous. He is not an egotist, but merely his own enemy. The genuine egotist of former times at least tried to love himself. Today's egotist does not even love himself. Otherwise he could not treat himself as badly as he does. Our social feeling has become so deteriorated that people are not even egotistic any longer. They have no longer left enough social feeling even for themselves. They are but empty shadows.

It is the greatest mistake to assume that,because of our emphasis on sociology, social work, education and psychology, we have more social feeling today than we had, let us say, fifty years ago. What we really have more of today is social consciousness. When Queen Marie Antoinette once asked: "If the people have no bread, why don't they eat

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Originally the speech was delivered upon invitation of the Washington Square Consultation Center at the Judson Church in New York City on November 9, 1961.

The paper is an abbreviated edition of the original speech; a few remarks pertaining to recent developments have been added.

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cake instead ?", this was not mere maliciousness on her part. Her ignorance was shared by thousands of her contemporaries. With few exceptions, what we today refer to as "the people", the "common man", simply did not exist as a factor to reckon with in the minds of leaders of mankind until late in the 18th century. Since then it has grown, slowly but irresistibly until today not even a dictator can ridicule or by-pass the historic law of our time: that **people** and **peoples live together**. However, at the same time our experiencing the horror of our age, the **feeling** for what has been happening and does happen to the victims of brutal force, has become less and less a personal experience. The discrepancy between the impossibility to avoid a rapidly growing social consciousness, and the horrifying absence of social **feeling** to cope with it—this, in my opinion, is the tragedy of the 20th Century.

You will understand better what I mean, if I give you examples. The reason for taking those mainly from the American scene, mostly even from New York, stems merely from the fact that we are living here, and that this is our part of the world. Do keep in mind, however that the underlying psychological trends we are speaking about are not essentially American, but universal ones, indeed.

Why do great companies spend millions of dollars to advertise their inferior merchandise instead of improving its quality ?—Why do switch-boards in hospitals and physician's telephone services so frequently function improperly ?—Why are milk-containers still sealed with wax, when more and more proof has been collected that this method is cancer-producing ?—Why is it possible that a man can bleed to death in the street, even near a City Hospital, because of a regulation that a wounded man may be admitted only with the written permission of a policeman, and why is this rule changed only **after** he has died ?—On July 22, 1958, shortly before the introduction of commercial jet-planes, the famons radio reporter Mike Wallace had an interview with Clarence Sayen, the president of the Airline Pilots Association. Said Sayen: "We have been approaching the problems of jet-speed travel with the speed of a camel. Our air traffic system is totally out of date for the planes we have in the air **right now**. Every day our pilots report to us an average of four near-misses." Asked Wallace: "Does this mean that we can expect more collisions in jet travel ?" Answer: "Yes". **And upon this official statement jet passenger flight was solemnly opened !—This was in 1958.—Three years later,** Elias Halaby, administrator of the Federation of Aviation Agencies, was interviewed by the "New York Post", August 25, 1961. He said: "In air traffic control we are daily running risks born out of the deficiencies of the last ten or twelve years. Until we get a whole new system we will have serious safety problems". Question of the interviewer: "For how long will this continue"? Answer: "Traffic control will not be adequate **for another three years**".

These few examples must suffice for our short survey. Do they really

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belong together ?—They do. Just as you can measure the temperature on a thermometer, so can you measure through the behavior of people their interest in their fellowmen. Each of the examples, different as they may be from each other, shows the same utter lack of social feeling, the spirit of Cain : "I am not my brother's keeper," or "I don't care". But if we do not care, if we are not one another's keeper, whatever we do remains only half an effort. And the final consequences of **half** efforts are—and always were—: **total** catastrophies.

During the last years this planet of ours has been drowning in clinical madness. Our world of lutniks and lunatics which was already split without the use of atom-bombs has become a mental asylum. We have the cold war, the cold peace, and from time to time we have the cold panic.

People have proclaimd God dead. But His ghost is haunting them now day and night. They have searched for his Angels in space, and since they have not found any, they continue trying to prove themselves to be stronger than He is. It is the Superman with the Superbomb who is to determine now whom to punish; and the peoples tremble under his path. And if the Lord visits the sins of the fathers upon the children and their children's children unto the third and fourth generation **Superman can do better,** he will visit them unto the thousandth generation ! Only one's own people, the chosen ones, will not be shattered; because "the Lord, thy God, is a merciful God." If ever there was blasphemy on earth, complete disregard for life and humanity, then we are witnesses of it, we the children of the Space Age.

If you want to know where we stand in our moon-race e. g., you have to read the clear and precise report of Carl Dreher in "Harper's" latest edition, March 63. Here you will find all the figures, all the horrifying details, how unbelievably far we are behind in our safety-measures for our astronauts. The author of the article is in full favor of space travel; so am I. This venture, however, becomes more and more a teen-age race of vantly, and less and less a scientific exploration. The same holds true for automation. It happens more and more frequently now, that the question is asked: "What will millions of people do in this world just around the corner, in the world of automation none is prepared for?", and again and again the automatic answer of the experts is : "We have to work on automation; what it will mean, socially, is not our concern". We **have** to. We have to. We hear it now over and over, day and night it is being yelled into our ears: **We must** ! **What is it we must** ?—We must shoot into the Van Allen Belt ! So we did; and nothing could stop us. Is there no difference any longer between having the spirit of a pioneer and being possessed by the Devil?—Much of this behavior reminds me of some of the worst symptoms of our most unhappy patients.

What could be done in this desparate situation ?—

The first question which comes to my mind is : what happened to

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our writers?—Never before could writers have more influence than today. In fact they are having less than ever. Is this due only to the deficiencies on the part of the public ?—I don't believe so. Whether they know it or not, people expect guidance from their leaders. What happened to our writers ?—And especially to our play-wrights ?—

The speed of reality has made them breathless, and the only reality left to them, and shown to us, is again and again the inner experience of crumbling alcoholics and intellectual bums, who always speak in symbols because they have no language at their disposal. Why don't the dramatists show us anything of the possibilities of the New World, of the inner experience of the dawning Age of Space ?—Because this dawning of the space age, the bright suns of hydrogen bombs have,paradoxically, completely blackened out our horizon. In other words: our writers are prisoners of the same tragedy as are all the other intellectuals of our time.—

I would like to take the risk of appearing very naive and idealistic. The things I now will say **could** be done if only they **would** be done. What makes them naive and idealistic is **not** that one cannot do them; only because of the fact that they are **not done** do they **remain idealistic and naive.**—

What would have happened in Germany if 5,000 Germans **as a group** had protested against the persecutions of the Jews ?—We know. Hitler would have killed them. And how about 10,000.....15,000..... as a group ? Sure thing. But would he have killed 5,000,000 Germans raising their protest in 50 large cities at a particular hour of a particular day all over Germany.....would he have killed 20,000,000..... 30,000,000.....out of 80,000,000 Germans?.....No ! Protest is not only a matter of quality but of quantity also.

Ladies and Gentlemen: what would happen if by a secret agreement (**and this could be done**) all important physicists, on both sides of the fence, would proclaim from one day to the other that they are not going on with their destructive work ? Under no circumstances. Do you think the governments of the earth could kill all the great physicists on whom they depend.....? The facts are: within two generations, from Madame Curie to Wernher von Braun, physicists have risen—a unique historic situation—from the poor and shabby roominghouse-laboratories of the 19th centuty to the status of a world domineering power; no other class of people today has an intellectual power comparable to the one they hold and they have actual power likewise; they really carry the fate of the planet. There are brilliant and wonderful people among them. I ask: what have they, as a group, done with all their power ?—"All wheels are still if we will" said the old socialists. This was a slogan.The physicists of our time really could do it. They could force mankind into peace.

You may know what, in the 16th and 17th centuries, a catholic who believed in Christianity was called. "Protestant".—You may know what,

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in the 16th and 17th centuries, a protestant who believed in Christianity was called: "Catholic"—(Just to show the mainstream of what went on. not to mention the hundreads of splinter groups fighting each other on their own account.) We are in a similar situation today, only a thousand fold more dangerous, more complicated, and more confused. It is almost trivial already to point to the fact that Russia and U.S.A. are minute details in the astronomical historical process we are experiencing, that the mere existence or non-existence of the earth is at stake—and still 99% of all people are not really aware of it.They have neither the phantasy to imagine what is going on,nor the information to know it, nor the interest to be truly informed. They want to hold on to their prejudices: and so they are marching in circles, tottering around, and speaking endlessly of missiles and anti-missiles, of defense and attack and protection and survival and—most of all—of loyalty and disloyalty.

Suppose you call a physician to a man who has the plague. All the relatives, all the friends stand around and speak of nothing than the patients terrible headaches. the doctor explains "his headaches are but a **symptom, I have to attack the disease, the plague**". All the people clench their fists, and yell at him: "You are unpatriotic.....he is **disloyal to our friends headaches**....."—This today is the situation of a doctor of the mind confronted with the witch doctors. At least as long as he himself is in his right mind.

My own group, we psychologists, are not only entitled, but obliged to explain to as many people as possible, what is going on; and just as it would be unfair to overlook that many individual physicists have spoken out what had to be spoken out,—against all odds,—it can be said in all fairness that psychologists as individuals, and of late even some small courageous groups, have acted the same way. But I have not yet once seen Psychology come forth as an organized world science,and raise its voice in protest against the planetary delinquency. Why ?—In order not to be considered to be"political"?A priest is not political if he fights for reverence of life. Nor is a psychologist, I believe that it is much less the task of psychology to study the behavior of rate that it is to care for the human soul, and even to be passionate in its active fight for mankind's sanity.

Now the time has come to ask ourselves the question: What is a sane society ?—And, in spite of sixty years of Depth Psychology, there is no easy answer. A young African tribesman, e.g., talking every day with his dead grandfather, would be considered a psychotic by the majority of the clinicians in our Western culture. While in his own culture he is considered a normal person. It may even be that he would be considered a psychotic in his own culture if he would **not** talk with the dead man.—Whole civilizations, e.g.,the Maya Culture in South America,were combinations of clinical madness and high productivity and creativity. Sexual intercourse of men and women with the devil was a reality for

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people in the sixteenth century, and witch hunting was done by otherwise rational people. Kepler, the great astronomer, who discovered the laws of the movement of the planets, believed in witches and this, although his own mother was in danger of being burnt alive at the stake. Certain drugs can, at any time, in any of us, produce near-psychotic conditions.

We cannot go into all the psychological problems involved, but: where really lies the border?—A rather good joke exists. The **neurotic** says "Two times two equals four; but I don't like it". The **psychotic** says: "Two times two equals five".

It is therefore the loss of reality, the complete and steady loss of reality, which shows the difference between them. And if we speak not of an individual but of a society, how do matters stand then ?

Much more complicated. I never believed that there ever was such a thing as a ruling class, which merely needs to be replaced in order to automatically make things better. By what is this class **replaced** ?—By another class, which automatically becomes a ruling class. We better turn away from the illusion of a classless society, and begin first to have more knowledge of the mass psyche of mankind. The conflict going on in mankind's psyche is not, and never was, a fight between the rulers and the helpless ones; it is not, as Nietzsche once put it, a fight between strength and weakness. It is, as Romain Rolland expressed so wonderfully in "Jean Christophe" **that our strengths and our weaknesses are fighting: our strengths and weaknesses.** A society does not entail a fight between top and bottom but a dynamic game between **external actions** of **the few**, and the **internal attitude** of **the many**. The mass psyche of mankind does not show the reactions we find in physics and in chemistry. (These two are not just by coincidence the sciences already highly developed in Karl Marx's time). But if we go deeper into the structure of matter, energy and life, as do modern atomphysics and biochemistry, the similarities with mass psychological appearances become striking. One can find at a particular moment of time in any atomic group as well as in any human group certain movements, inclinations, directions, tendencies pertaining to the majority of the group. Translated into a new ethics it would mean: one should not make responsible each one, individually, by burdening him with a collective guilt, but, on the other hand, one cannot acquit a society for what it is doing as a whole, and what is happening in its name.

I believe we now come closer to a valid definition—valid for our purposes—of a sane society.—I would define insanity as a state of mind where the balance of creative and destructive powers, forming the very existence of every individual and every society, is disturbed to such a degree that the destructive powers, by the dynamic pressure of their own weight, if not checked, automatically must lead to annihilation. Has our West-East world already reached this point of no return ?—I believe it was more than once near the breaking point; I still wish to believe it

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must not lead to annihilation.

Behind the curtain—(I mean not "theirs" and not "ours"—I mean the curtain of the future)—on a deeper level than the political one—developments are going on, into which we will delve a little. The developments I mean take place in the fields of philosophy and religion.

Philosophy, as a discipline, is changing with the speed of our changing world; and while science in general becomes more and more abstract, even metaphysical, under the impact of modern physics and mathematics, philosophy will become more and more practical under the impact of the rapidly broadening vistas of modern science.—

As for religion and metaphysics, there can be no doubt about a mounting interest in them in our country and abroad. Zen-Buddhism has become enormously popular in the United States. But there are even more surprising symptoms. The "American Psychological Association", for example, dedicated a complete edition of its official journal to a "Symposium on Relationships between Religion and Mental Health". Among the strangest phenomena, however, are the strong connections which have recently been established between psychologists and religion, particularly strange, because so many of our colleagues were strictly opposed to all transcendental ideas.

How can it be that they now embrace religion, theoretically, in papers and lectures, and practically, in their close cooperation with priests and clergymen ? Can it be that they look at religion only as a collection of traditional ethical values, however appreciating the great importance of these values now more and more for a modern community also ? But can one really view religions of the Western world while leaving out their metaphysical implications ? I grant that one can be highly ethical without being religious in a conventional sense, but I do not believe that one can have a genuine relationship with the religions of old without accepting their metaphysical approach to the Universe; and it is now time to realize this fact.

Yet, I myself should like to draw a fine line between religion and metaphysics. As I understand them, religion represents the age-old treasure of metaphysical wisdom; **future metaphysics**, however, I should like to define as a **general state of mind**, as the **inner experience of future generations**, which will develop unavoidably, as I see it, under the impact of **astronautics and parapsychology**.

When I speak of metaphysics, I assume that you all understand Philosophical Materialism to represent the system of thought which tries to explain the world rationally and logically. This original materialistic view of matter and physical force—stemming from the 17th, 18th and 19th centuries—has been changed to such a degree that it is hardly recognizable any longer.

How it is possible that so many scientists can still deny the metaphysical trend in all sciences, I simply cannot understand. It was Albert

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Einstein who said that we are operating with formulae beyond our intellectual grasp, which are nevertheless so "real" that the results can mean life and death of our planet.

The concept of Time has become an even more confusing experience for us than Einstein's equation of matter and energy. Dr. Saenger, one of the foremost rocket-experts, has made some calculations. If a space-ship circumnavigating the cosmos, could approach almost the velocity of light, which may one day be possible with the help of the plasma-engine, the crew would "perceive" that the journey had lasted thirty-three years. Yet, in reality, if they returned to earth, the earth, if still existing, would have aged 10,000 million years ! Take this "rationally" if you can, please !—

Another example: there is a great probability that there are galactic systems in the Universe consisting of so-called anti-matter. This means that their parts show none of the qualities of what we call matter, and all qualities known to us are turned into their opposite.—A third example: I have personal information that one of the greatest American Universities supports the research work of a young physicist at the present time, who claims that matter can travel at a higher speed than light. (Which, as you know, according to Einstein, is impossible). —If these experiments should fail, it remains interesting enough that a university of highest standing finds them worthwhile to be explored. If they are realized, it would mean that a message sent to the moon would arrive there—according to our earth time—before it has been sent. This would be no more and no less than a scientific proof that prophecy is possible.—

You want more miracles of the modern world ?—For instance, there are persistent rumors in European scientific and philosophical circles, especially in Germany and Switzerland, that under the chairmanship of Khrushchev himself, a conference of high ranking party ideologists and physicists took place some time ago, with the purpose of establishing a new Soviet philosophy, in case the progress of nuclear physics and astronautics should doom Scientific Materialism, on which the Communist philosophy of life has been based since the very beginning. This, as I say, is a rumor, but the following quotation from the Russian official party organ "Kommunist" (already in January 1958) is not: "There is a bitter fight going on right now between materialistic and idealistic philosophies about the very nature of the nucleus of the atom. Unfortunately many of our best minds have withdrawn from this fight, and some of them have even gone so far as to declare that the time may have come for a peaceful co-existence of both philosophies. This would mean no more and no less than the ideological disarmament of Soviet science".

The full impact of modern metaphysics is to be felt, however, in the field of parapsychology. The pioneer work of several courageous scientists, e.g. J.B. Rhine's experiments in extrasensory perception, or Nandor Fodor's research in "Poltergeist" phenomena, is well known. And although

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this kind of work is still often enough met with arrogance and ridicule, there are other signs less noticed by the broad public, which are indicative of the great change in progress. May I quote: "The facts of parapsychology— —if indeed they are facts and not due to experimental error, hoax or fraud-- — might well force upon us a thorough reconsideration of the very framework of presuppositions in psychophysiology. And although there is not even a glimmer as yet of an acceptable and responsible theory of these curious phenomena, as an empiricist I have at least to go through the motions of having an open mind on this topic". Granted this statement is a very guarded one; but when we consider where it comes from, it is even more significant. It comes from, a speech delivered by Dr. Herbert Feigl, guest speaker at the Annual Conference of the American Psychological Association in Washington, in 1959.—

I do not know whether these few examples could bring to you a glimpse at least of the complete changing of the outlook in the universe—developing in the midst of our misery, permeating the minds of scientists and laymen alike, clearing up vistas of undreamed of grandiosity. While we are wrestling with our childish everyday affairs, a greatness of cosmic feeling, greater than the religions yet could understand, is opening up before our blind senses. Very few, indeed, are yet sensing the hope which lies in this grandiosity;that a new sense of strength, a new meaning of life could grow out of it.

If a man who tortures himself day and night because he thinks himself deadly ill, will get a few words of consolation from his doctor, it will not help him for too long. This is what our cheap slogans do to our people. While it is being preached us constantly that we are the hope of the free world, more and more Americans lives a life of complete apathy and hopelessness. As a society we have become more and more a group of isolated unhappy individuals, marching together in no direction.Imagine, if we could bring to our man who tortures himself day and night because he believes himself to be deadly ill, the conviction that he really is not healthy but that we have a real cure for him, instead of just giving him a few words of cheap consolation! This is,what modern Metaphysics, the new outlook on life, could give to our people and to the rest of the world.

It is impossible to go into details, but I think—inspite of all the shortcomings we have encountered in educatton in the last decades, and in spite of all the justified criticism it had to endure that education is the only answer to our sick world.What we are up against today are elemental forces broken loose from the abyss: psychic volcanoes. To fight them, to tame them,it needs elemental forces of equal strength.To'enlighten'is not enough.The Germans were a people of the highest educational standards, and Hitler came to power by legal and free election! And this is only one example. We have to convince people similarly to the way it is done in psychotherapy—only it would be far more complicated a process—by

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changing the inner attitude of the enlightened ones. A person graduating from this experience should then not say:"Now I **know more**" but rather "Now I must **act differently**".

I understand that all good teachers since Adam and Eve have worked this way. What I am looking for is a method to make this kind of education available to millions of people. You may not be aware of it, but this has been done once already during the last generation and in a **negative** way. Systematically, scientifically, worldwide, through all kinds of media, yelled over all loudspeakers—admirably done: admirably namely from the point of view of progress in psychopathology ! What I am looking for is the systematic, scientific. worldwide **counterattack**. I cannot see why an effort could not be made to influence masses psycho**therapeutically**, instead of psycho**pathologically** !

Psychotherapy has today practical methods at hand, good enough to fight the psychic epidemics of fear, of hate,of the desire to annihilate. All these methods are certainly not more than beginnings of a real collective psychotherapy of the future. But they are here.What I have in mind is to create something like a Psychological World Movement. Not to further enlarge the number of psychological amateurs and crackpots,but to make more and more people better equipped to look through the lies. the hypocrisy, the prejudices of general politics. Psychology, in my opinion, has no more important a task to fulfill now than to become political itself; in the sense of the original Greek word, namely: to share with a personal responsibility the affairs of the state. This movement could force every statesman in any civilized country to have information of a **personal** nature in psychology, in sociology, and in physics, biology and astronautics as well. I repeat: **personal experience**. Just as a medieval knight would have felt very much out of place without personal experience in fighting with sword and lans.

Optimism is a word which belongs to the world of our grandparents like virtue and moral; it has been discredited to the utmost. Still, I want to tell you a story, a story by Aesop, the old Greek fable teller,the story of the two frogs."Two frogs jumped around the rim of a pot filled with milk. Suddenly they both fell into the milk. One of them said: 'That's the end of me', made ready to croak and drowned. The other one did not give up; he kicked and kicked and kicked, until he felt solid ground under his feet once more. What had happened ? The milk had turned into butter."

I know all the objections which could be raised. "What would have happened, had the frogs fallen into honey.....or into vinegar ?" The answer is clear. Both would have been drowned. But it is this very objection which justifies the attitude of our frog ! Those people who raise this objection do not grasp the meaning of the fable. The optimistic frog did not know anything about the substance he had fallen into..... he just kept up his fighting spirit. **How much more do we human beings know about the substance of life we have fallen into.....?**

Let us stop here,and end our journey;and perhaps—in spite of everything—we are a little more optimistic now than we were when we began.

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THE YIN YANG OR POLARITY CONCEPT IN MUSIC

ESTHER WATSON TIPPLE

A Bit Of History

AT the time my article on "Mercator Tuning Fork Experimentation with 'Harmonic Union Creation' " had been accepted by the Editors of *DARSHANA* (in June, 1961) a new light dawned on my research. The phenomenon of mental image occurred, i.e., the picture came to me having "truth color," which my father had described as one of his experiences during the period of "The Birth and Babyhood of the Telephone." The picture in my imagination in 1961 remains clearly in my memory, but it has taken me a year to get the form into mechanical drawings and the model slide rule which brings through to the world of matter the truth aspect of the "picture".

In 1951 the preliminary thinking of the physicist, Dr. Frye, the mathematician. Dr. Baravalle, and the music psychologist with whom I had first used the tuning fork in music therapy, Arthur Flagler Fultz, combined to lead me to develop the first diagrams to be drafted for us of the Mercator music slide rule. It was not until in 1960 when I was invited by the Principal of the Rome Main "colored" High School to use the tuning forks and my eight-foot presentation of the piano keyboard, in the choral class where there was a piano, that it appeared that this theoretical research might have practical value. We named the new one-day-a-week course, "Reading, Writing and Arithmetic of Music." The 1951-3. the earlier, diagrams were useful, the Music Director considered, for clarifying knowledge of music as a language; but the High School's required courses of study curtailed our joyful experience with the choral class members' "singing of great composers" music and my awareness of the inner knowledge of pure music intervals and rhythm.

As I intuitively sensed that the materiality of our American civilization would not naturally be interested in what my research in music had made me perceive, I told the Choral Class and their Director, who is also head of the High School's mathematics department, that it might be we would be able, together, to work into useful form what it had been my privilege to gain from years of study (with top men), but that I believed it would be necessary for me to carry through by way of India. The Hindu 22-tone scale causes their musicians and philosophers to take an interest in the 53-tone scale whereas the European-American see no reason for considering the 12-tone scale inadequate.

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Psychologists might consider therefore that my mind was already "conditioned" to the possibility of the mental picture with "truth color" which occurred to me when I had made contact with the East Indian ethos. Even the phrase "dynamic symmetry," which labelled the picture was already in my subconscious mind,since the Canadian trained Doctor of Music at Boston University had hoped that my work might do for music what the architect-artist, Jay Hamidge, had done for art composition in discovering the mathematical structures back of those masterpieces which have more than passing value.

The picture: At the position D in the Middle C octave where the major scale organization presents the Mercator number 10 and the minor scale organization shows the Mercator number 9,I saw the"Eye of God" which our U.S.A. Great Seal engraver had placed in the triangle which forms the apex of the pyramid. This Great Seal pyramid is to be seen on all our U.S. silver certificates for one dollar.The American civil engineer, J.K. DeLoach, who had seen the debacle of the diplomacy at Versailles in 1918 at the close of the "War to end War" and who thereupon had begun his study of the philosophic principles which maintained China and Egypt to endure for millenia, had contributed greatly to the concept of the Mercator slide-rule in 1950-51. His diagrams had dovetailed into mine (after a World War II disabled soldier in the blue print business had seen them both and brought us together).Mr. DeLoach had augmented what I had gained of knowledge of Egyptian mathematics from Dr. Baravalle. Mr. DeLoach had made clear that the Latin inscription: *Annuit Coeptis Novus Ordo Seclorum* was of profound significance and that the word"Seclorum"was related to the words "secular" and "cycle".

The "Eye of God," tacitly acknowledged by those who built Pyra-tombstones for their Pharaohs, was projected as an image into the 18th century U.S. Great Seal,and in the 20th century in 1961,a hundred years after the beginning of the Civil War which tested, in the words of Abraham Lincoln, whether "a notion so conceived and so dedicated could long endure," I saw this symbol, the "Eye of God," at the point where the Yin and the Yang polarity aspects do not actually meet. This point D in the natural scale of C major and its reverse organization A minor was at the central point in the area of intersection of the arms of a cross on which the logarithmically-spaced consecutive numbers in arithmetic sequence stretched horizontally to right and left and the less factual concept of the geometric successions which form the cycles were imaginatively sensed on the vertical arm.

II. (a) The Mercator YIN YANG SLIDE RULE

The plan of the diagram, "A 440 Section....." was made from previous drawings of the 8-foot slide rule before a usable 15-inch model was built. This diagram shows the theoretical integration of the seven tone scale in the alignment upward from G_3 by overtone phenomena

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from three related fundamental: 9—6—4—36, with the figure 10 on the Yang IV slide at A 220 cycles per second which is an octave below A 440, International Pitch. This diagram shows the Yin, or reverse organization of tones, which presents C major's "Relative Minor" scale, in downward alignment: 9—6—4—36 from A 220.When these two vertical rows of alignment or,integration, are considered as the frame of a music space, the mid-point is not at D, as in my mental picture with "Truth color", but at the black note between G and A. This is the position where in Mediaeval music development from fixed positions of the seven tone scale which provided "modes" but not complete modulation, the "wolf gap" occurred. The concept of the "Well tempered Clavichord" with its possibility of modulation around the circle of twelve semitones came into music in the Early Renaissance. The Mercator scale has two Mercator units between G sharp and A flat, this "wolf gap". The one Mercator unit difference at D in the Natural, or C, scale,not only shows the one and only one pitch difference between the Yang and the Yin relation to the facts of the physical world but also symbolizes the infinity aspect which is intrinsic in the logarithmic spiral as it closes the near-coincidences to practical "circles" of modulation.

II. (b) The Music Logarithmic Spiral

My first attempt to give this picture of the "dynamic symmetry" of music intervals was not completely true to my inspiration—as I discovered after months of hard mental effort. Instead, after the diagram was made and checked by the model slide rule, I discovered that I had made the tie-in points (which integrate to the music entities the "Yin" and "Yang" organization of just or whole number ratios) for the frame of what musicologists have termed the "wolf gap". It was then necessary to separate the tie-in points in order to have the D position at the central point in the area of intersection of the arms of the Cross.Only then does the symmetry of the whole slide rule come into graphic representation. Accordingly, the space between the Harmonic Union Point of the Yang direction in the series of harmonics and its reverse, Yin, is the interval 9/5. Thus $3/\sqrt{5}$ may be the mid-point. Is this the "golden number" used by the pyramid-builders of ancient Egypt—and then lost ?

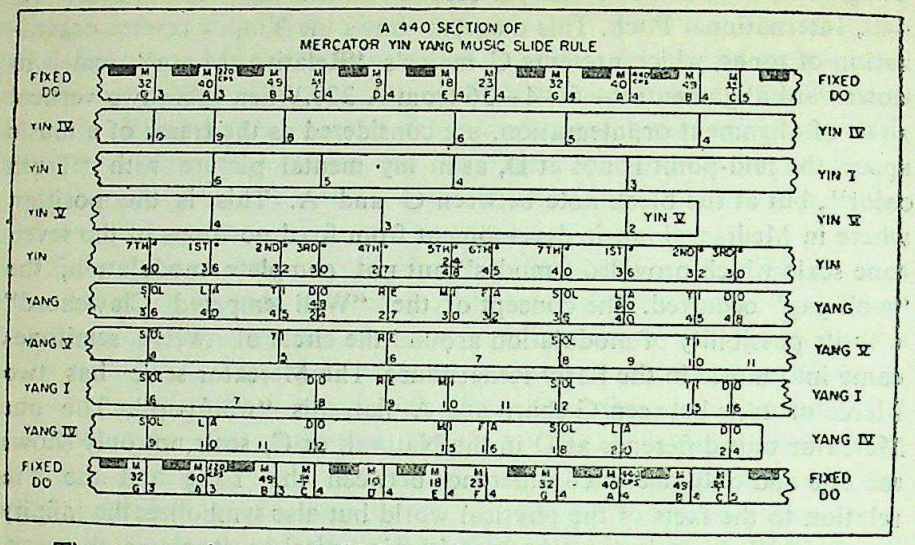
Here, in the briefest form, is the theory behind the development, in music theory, of the seven tone scale as a creative entity.

The diagram, "Pythagorean-Mercator Analysis.....," was my first attempt to put into one drawing the two different mathematical processes, geometric and arithmetic, which the 53-to-the-octave tuning forks had shown. Music theorists had considered the major seven-tone scale to be complete with its 4th and 6th degrees by man-made conventions which placed the F and A in the key of C major, where there are gaps in the arithmetic progression of overtones from the keynote C. The whole number ratios to the key note are in the success 8 : 9 : 10 : 12 : 15 : which provide the do, re, mi, sol, ti, of the Just intonation scale.

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(See Yang I slide on the Mercator Slide Rule diagram.)



The geometric aspect which produces the 12 tone cycle by near-coincidence of 12 Perfect Fifths or 3/2 ratios in frequency, and 7 octaves, 2/1 ratio, has been presented by music theorists as the compromise in 12 tone equal temperament which provides the "Circle of Fifths" for modulation from key to key. Mercator analysis showed that when the F was taken as the starting point of the succession of Fifths, the twelve-tones of each of the seven octaves represented on the piano keyboard would have the first seven letters of the alphabet on the white notes, and the black notes would be the sharped notes in this succession: F C G D A E B F≠ C≠ G≠ D≠ A≠. But the piano keyboard starts with A below the first C or C_1 which Puts F_0 into the realm of the theoretical or imaginative.

Mercator analysis, in working up the Slide Rule, showed F had to be the starting point, since the overtones of an F below the piano at eleven cycles per second provides the actual frequencies of the just scale of C major by the ratios to the keynote discovered by Hermann von Helmholtz. However, the "discrepancies" are still in the picture and also gives F, not E sharp, in the circle of the Fifths. The circle diagram indicates F as the narrowest line that points to the mid-point between the F which provides A 440 by geometric progression, F M22; and the F M23 which provides by a 4:5 ratio this A 440 International Standard Pitch. The concept of the as yet unmeasured flow of music energy along the octave radii is another Mercator theory; it is required to explain observed phenomena.

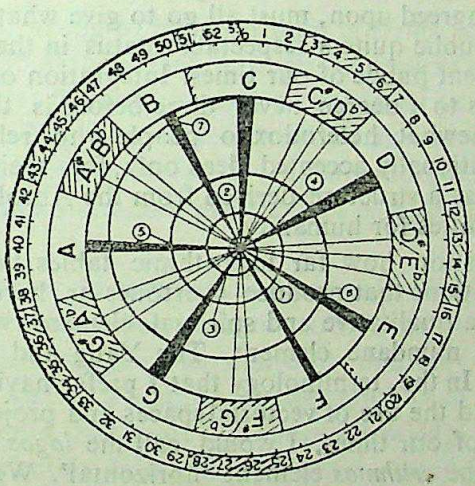
On the circle diagram A, E, and B are heavier lines and point to definite frequencies: A 440, E 660, and B 990. The "discrepancies" are at C, G, and D, but they are definite mathematical points, namely: M53/0; M 54/1; M31, M32, and M9, M10. They show the two types of functioning in music mathematics.

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As an improver, or pondered on the archaic Gaic aspects of human life, I came to the idea of the integration by harmonic union of the three related series of harmonics at the 5th degree or "Dominant" of the just scale. This made the 7 tone scale entity symbolic of the union of body, mind and spirit. The acoustical and mechanical engineers were perplexed at my theory of the integration of the seven tone scale since many automobilists know that there is a near-shattering, called "shimmying", as one approaches the speed where the engine runs smoothest. To me, however, this has appeared to be also a psychological phenomenon, as those persons who are closest to each other by human ties may hurt each other the most, whereas all of us seem more or less indifferent to the jibes of those not so related. The harmonic-union-point was therefore named the "tie-in" point, and to me it makes clearer the meaning of integration, a meeting point of kindred souls by a bond which can hold through the physical shatterings of mortal experience. This inner aspect of the number seven was recognized in the 9th century Christian hymn, "*Veni Creator*" in the words of the English translation, "Thou the anointing Spirit art who dost thy seven-fold gifts impart."

PYTHAGOREAN-MERCATOR ANALYSIS
OF
WHOLE TONES AND SEMITONES
IN THE
PYTHAGOREAN SEVEN TONE SCALE
OF
C MAJOR



PYTHAGOREAN SEVEN TONE SCALE, a segment of the TWELVE TONE SPIRAL CYCLE, or NEAR-COINCIDENCE OF TWELVE PERFECT FIFTHS, measured on the logarithmic spiral, and SEVEN OCTAVES, radii.

The diagram "Pythagorean Mercator Analysis—," attempts to show how this seven-fold entity is a functioning organization on matter where

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it may be located iu the "Circle of Fifths" of the geometric 12-tone, or 53-tone "Circles," As a matter of music history the 12 tone scale was originated in Germany as music material coincident with the First World War.

III. Some Thoughts On Music Logarithmic Spiral†

The Music Slide Rule, based on a subtle interrelationship of tones and of certain series of harmonics on a logarithmic spiral foundation of theory applicable to music in general independent of historical or geographical consideration, seems to contain a wisdom--secret of great significance and value for the integration of musical theory and technique on a world basis without barriers of time or clime. As an element of mystical reasoning, calling for the exercise of intutition, enters into it, only trained technicians who are themselves pure mathematicians can enter into the spirit of the discovery, Being neither a musician nor a mathematician I cannot go into any details involving such questions but by exercising a general and vague sort of popular intuition or native intelligenee which as belonging to *homo sapiens* all men must have, I do feel, although only vaguely, the correctness and validity of the findings of Mrs. Tipple, especially as it is not the product of the fancy of a single person only, but of two or three others who have devoted much time and attention to arrive at the findings now set forth. These findings are in a form that still needs simplification for the layman to under stand. The names of Dr. R. M. Frye, nuclear physicist, of Boston University, who tested the rule in its formulation, and the intuition of Dr. Thomas A. Watson who ushered the basic idea into being, together with the fact that it is in keeping with ideas of great minds, such as Pythagoras, Descartes, Leibniz, and Helmholtz, who were capable of abstracting and generalizing boldly on such subjects. and that it is treated together with what poets, like Browning, and Chinese wisdom have tacitly assented to and agreed upon, must all go to give what Mrs. Tipple here presents to the public quite a respectable status in the eyes of the interested and intelligent public of our times. Integration of thought elements on a unified basis to a degree never done before is the reason why the idea appears somewhat heterodox to people who rely much on ready-made and conventionally accepted ideas only, for their own certitude or belief. Reality has a structure derived from the Absolute whose mystery is full of possibilities for humanity.

To the question how far logarithmic tables tally with the actual numbers of vibrations that produce overtones or harmonies I can only say that *logos* is a qualitative and spiritual element while *arithmos* is a quantitative and mundane element. The Yang and the Yin distinction is implied here. In the terminology that I prefer having in mind Cartesian correlates and the use of vectorial spaces and projective and topologi cal geometries of our times, I would call the *logos* element 'vertical' component and the *arithmos* element 'horizontal'. We have to imagine a vectorial space wlth one to one correspondence between reciprocal aspects and view the whole in the context of the Absolute which alone can give basic validity to this way of relating the sensible and the calculables in the science of the future before this spiral which is the product of a differential and not a mere difference could be fitted into a proper macro or microcosmic structure where subjectivity meets objectivity. More I cannot say without beginning to resemble Browning's poetry *Abt Vogler* which you have sent.

† By Nataraja Guru Gurukul Fernhill P.O. Nilgiri Hills, Madras State, INDIA (by Permission)

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FRAGMENTARY CONCEPTS OF MAN

B. L. ATREYA

Philosophy Should Be Based On Deeper Understanding Of Man

ALL scientists now admit that science has not investigated all the aspects of the universe and man, and that it is incapable of doing so by virtue of its self-imposed limitations. In formulating a complete and comprehensive and, therefore, satisfactory view of the world, we shall have to take into consideration all the facets of experience, and particularly all sides of human life. Man being a part and product of the universe, a proper and full understanding of man must be regarded as a key to the understanding of the universe. And particularly so, because it is only in man that most of the potentialities of the world seem to have become actualised, he being the last evolute; and also because it is in himself alone that man, the creator of all sciences, is conscious and can be conscious of all the facets of reality. We know the external world only through our senses, but we know ourselves in many more ways.

It is, therefore, wrong to interpret man in terms of the knowledge of the external world alone gained through the senses. On the other hand, it is right to interpret the universe and nature in terms of the knowledge gained by understanding man as deeply and comprehensively as possible. It is no use criticising this method as anthropomorphic. All knowledge being ultimately human and to a great extent subjective, all science is anthropomorphic.

One may ask here ; Is complete and correct understanding of man possible in view of the fact that we know so little of him yet ? Yes, much of what man completely is remains unknown and may remain so for a long time to come, and so a complete understanding of him is not possible on incomplete data. But more and more knowledge of man gathered from all possible scientific data and from other sources, yet untapped by science, shall certainly enable us to correct our false view constructed on the basis of very scanty data collected by only a few sciences which do not have man as their chief concern. To be rid of false views, to know that we are deluded, is itself a great achievement, and a great step towards building a more comprehensive, and, therefore, more correct view.

With this purpose in view, let us have a brief survey of all that we have come to know about man through the piece-meal attempts of various scientific, empirical and analytical approaches hitherto made.

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Physics And Man

Physics deals with and confines itself to matter, its constitution, its forces and forms. It tries to understand the nature of time,space, energy light,heat,electricity,magnetism,and sound etc.,aud discovers laws of their action, reaction and interaction.Human body,being a physical object,and as such, a part of the physical world,is an object of the study of physics. It regards the body as a form of matter,which has come out of matter and goes back to matter.It is subject to the influences of all the material forces of nature. For example, the body can thrive only within a certain range of temperature; and the temperature of the earth depends upon the radiation of the Sun, the distance of the earth from the Sun,and the rate of the rotational speed of the earth. The extent and density of the atmosphere around the earth, the tiltage of the earth's axis, the distance of the moon from the earth and the gravitational pull of the earth affect our very existence. Physics, therefore, holds that man is a part of nature,and is completely determined by natural forces. It has no interest in anything else in man. It does not try to observe, understand, and explain vital, mental and spiritual aspects of man.

Chemistry And Man

Chemistry studies and confines itself to the various kinds and composition of matter, the amount and kind of energy required for bringing about changes in the forms of matter, and the laws which govern the changes. Human body is material and is composed of parts which have chemical properties and undergo changes which affect their properties. Recent discoveries in chemistry have brought to light chemical changes in the body which affect the life-processes,determine instinctive and emotional reactions in the body, mould its frame, determine the temperament and character of individuals. Man cannot exist,grow and work without taking in required amount of proteins, fats, carbohydrates ,minerals,water oxygen, and vitamins, which are all chemical compounds. To digest foods certain enzymes, which have strong chemical reaction, are required, and they are generated within the body by the internal chemical factories, called glands.There is a special kind of glands—pineal,pituitary,thyroid, thymus, adrenal, and gonads—which secrete certain strong chemical substances, called hormones, which directly fall into the blood-stream and produce marvellous effects on the temperament, behaviour and personality of the individual. Drugs which have stimulating or depressing action on the organs of the body and on the body as a whole, are great chemical agents which greatly affect the health and character of the individual. Medical science is a branch of chemistry, and medicines play a very important role in bringing about extra-ordinary changes in the personality of man. Chemistry, therefore, claims to hold the key to understanding, changing and controlling human personality, which is chemical in its structure and function. There is, however, much more in man than what is known to chemistry and which cannot be explained in chemical terms.

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Biology distinguishes the living from the non-living among the beings in the universe, and studies the countless forms and functions of the former. Some biologists who are not biased towards physical and chemical explanations of life-phenomena and their funcions, think that life is *sui generis* and cannot be understood and explained in terms of physical forces and chemical changes and properties alone. Man is a highly complex living being; hence an object of biological study. All living beings, including man, differ from non-living ones in having the following characteristics: (a) Metabolism, which consists in digestion, dissimilation, and assimilation of food, (b) growth and development, and (c) reproduction of its own kind. The smallest unit of life is a cell which is made of protoplasm, a unique kind of chemical compound. Animals are unicellular and multicellular. All multicellular animals, including man, perform the following functions with specialised organs and systems : holding and protecting the vital organs, movement and locomotion, digestion, respiration, circulation of blood, excretion of unrequired material, conduction or transmission of impulses from one part in the body to another, sensation, internal secretion of hormones and reproduction. Biologically man is only a more complicated animal with greater unification of the systems of organs. He seems to have appeared late in the pageant of life. The laws of heredity of parental biological traits are almost the same in all those living beings which multiply by the union of male and female. Physiology a branch of biology, which specializes in the study of the functions of the organs and systems of the body, has come to the conclusion that all mental activities of man are correlated with and therefore dependent upon the functions of the brain and the nervous system. The human brain is a very complicated organ and therein lies, according to physiology, the secret of entire human behaviour. A little malfunctioning of any part of the brain may cause serious aberrations in human conduct. Brain surgery and medicines which bring about chemical changes in the brain are now regarded as effective treatment of all mental troubles of man. Biology does not postulate the existence of mind or soul as something apart from the body. Biology leaves many aspects of human personality unexplained, they are observed by psychology and other sciences of man.

Scientific Psychology and Man

Psychology is the science of the mental aspects of man. It aims at understanding how men know, feel and act. Mental processes not being open to scientific observation and experiment, self-observation or introspection and its report are admitted as a part of psychological method. Psychology claiming to be a science, an attempt, however, is made to make it as objective and experimental as possible and to avoid the use of introspective report. So, strictly scientific psychology now avoids all reference to subjective states and confines itself to observable and

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measurable reactions of the organism as a whole. As there is no final agreement on some principal issues among psychologists, there are several schools in contemporary psychology.

Watson, the founder of Behaviourism, has tried to make psychology a purely objective science like physics, chemistry and biology, discarding the use of all subjective terms like sensation, attention, thought, consciousness, feeling, emotion, intention, and will etc. He considers man as a highly complex machine, governed by mechanical, chemical and biological laws. All human behaviour which is the subject-matter of psychology, however complex and organised, is built up by reflexes and conditioned reflexes. All learning is conditioned behaviour.

Gestalt Psychology does not proceed by analysing complex mental phenomena into parts. It studies all mental and even psycho-physical processes as unanalyzable wholes. For, it is not the component parts that determine the character of the whole and indivisible mental states by the addition or fusion of functions and qualities; the wholes have their own specific qualities and functions. These determine the nature and functions of the component parts. Personality, with which psychology is mainly concerned, is the development of the psycho-physiological organism as a "peculiar kind of system" (Koffka), which maintains its own orderly equilibrium and special and temporal unity as it evolves and interacts with the world. The nucleus of the personality is the ego, which represents and incorporates the peculiar needs and ambitions of the individual.

McDougall led a reaction aganist the material, mechanistic and non-purposive view of animal and human behaviour and founded a new school of psychology, called Hormic or Purposive Psychology. Although psychology is still defined by him as the science of behaviour, all behaviour, according to him, is purposive; and it begins not with reflexes but with complex and unanalyzable instincts. An instinct is a purposive reaction of the individual as a whole. It is defined as "An innate disposition which determines the organism to perceive any object of a certain class and to experience in its presence a certain emotional excitement and an impulse to action which finds expression in a specific mode of behaviour in relation to that object." All instincts serve some purpose of the organism, no matter whether it is conscious or unconscious. They combine with other instincts and give rise to complex behaviour and sentiments. All sentiments and behaviour patterns organised around the sentiment of self-regard constiute a personality.

Although a few psychologists still retain the name of self as a necessary subject of all our mental processes, psychology in general now-a-days does not talk about the soul, self, mind or consciousness. It only deals with the concrete personality and the way in which it is formed and organised, and how it develops and undergoes changes under the influence of heredity and environment. A typical definition of persona-

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lity given by Morton Prince is "The sum total of all the biological innate dispositions, impulses, tendencies, appetites and instincts of the individual and the acquired dispositions and tendencies, acquired by experience." (*The Unconscious*, p. 532). Warren and Charmichael say, "Personality is the entire mental organization at any stage of its development. It embraces every phase of human character, intellect, temperament, skill, and every attitude that has been built up in the course of one's life." (*Elements of Personality*, P. 48).

Psychology, although originally a science of soul (psyche), leaves many a problem of human life in the dark in its zeal to become an objective science. It does not give any satisfactory explanation of awareness, of identity and continuity despite constant changes in the psycho-physical organism, of memory and recognition, of the feeling of being a free agent of one's action, of dreams, of differences in intelligence, of performances of geniuses, of mystic experiences, and of paranormal phenomena, which are facts of human experience.

Sociology And Man

Sociology reveals a very important and essential aspect of man, namely, social. Most of what man is built on the contribution from the society in which he lives; and most of his behaviour depends upon the particular social situation in which he is placed. What a man eats, thinks and aspires for; the way in which he speaks and dresses; the gods he worships; his attitude and behaviour towards the members of the other sex; and the knowledge he acquires—all are determined by the group or community of which he is an insignificant member. His own thoughts and actions, in their turn, and particularly those of great and powerful individuals, produce their indelible influence on society. Communities and their *weltenshaung* live longer, and continue to determine the thougts and behaviour of generations of individuals.

Man As Known To Psychoanalysis

Psychoanalysis and its offshoots, Individual Psychology and Analytical Psychology, all now going by the name of Depth Psychology, have gone far deeper into the nature of man than the orthodox scientific psychology has been able to do. They regard man as a purely mental structure governed by its own laws, which are quite different from physical, chemical and biological ones. Depth psychology has discovered that man is not confined to what he is conscious of within himself at any time. His personality extends to unknown and unfathomed depths of which he himself is not aware. The psychic causes of many happenings in our conscious life lie and function in this deeper region. Our personalities are like ice-bergs only little of which is seen above the surface of water. According to psychoanalysis of Sigmund Freud our minds have three strata of existence, namely, the conscious the foreconscious, and the unconscious. The conscious is that of which we are usually aware and with which we identify ourselves. The foreconscious is that which retains

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those impressions of our past experience which can easily be recalled and used. The unconscious is the deepest layer of our mind far removed from the conscious. The contents of this region can be brought to consciousness with great difficulty and by special methods devised by psychoanalysis. Or they come to consciousness by their own laws of expression.

As our conscious life is more or less a life adapted to reality which consists of our natural and social environment, and of moral ideals and restraints, all that is in the unconscious and seeks for expression cannot be allowed to enter consciousness. A kind of censorship is exercised at the threshold. There are moments and occasions, however, when the censor is not on its guard, when it is weak or slackened, or when it does not function at all. At such times the unconscious contents rush to consciousness, singly or in groups, called camplexes, systemtically or chaotically. Some very strong and persistent complexes or single contents do not wait for such occasion, and therefore take a disguised form, and escape through the censor and thus force themselves upon consciousness. Thus we have dreams, slips of pen and tongue, undue forgetfulness, obsessions, unaccountable fears and anxiety, compulsions, neuroses, psychoses, hallucinations, illusions and delusions etc., Very often the unconscious complexes continue to be underground, but their effects are experienced in the conscious mind.

From the point of view of the contents and their qualities the total personality of man is regarded as composed of three factors, namely, Id, Ego and Super-ego. The id is our primitive nature consisting of all sorts of irrational and animal urges, illogical affects, selfish, aggressive, sexual, amoral and antisocial wishes which characterise a baby. It is governed by pleasure-principle. Under the pressure of the external world and environment, a part of the id gets organised in the form of the ego, whose activities are governed by the reality-principle. Under the influeuce of the exhortations and fear of the parents, and under social pressure and demand, a super-ego or moral conscience develops out of the ego and the id both. It is partly conscious and partly unconscious in its operation. The realm of the id is not governed by rational, moral or aesthetic considerations. Judged from the standard of a cultured and socially developed man, the baby in whom the id functions in its original form, is "polymorphously perverse," according to the discoveries of Freud.

The most predominent urge in the id is that of love or sex. Freud calls it Libido. In the life of a baby it finds expression in a number of "component instincts" associated with sensitive parts and organs of the body and with aggression. The young baby takes pleasure in exercising them. In the course of normal development the component instincts get co-ordinated and organised under the leadership of the genital instinct. With regard to the object of the libido, during its development, three main stages have been discovered, viz., auto-erotic, narcisstic, and allo-

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erotic. The chief feature of the allo-erotic stage at an early age is the oedipus complex, i.e., affectionate attachment to the parent of the opposite sex. After a period of sexual latency before puberty, there comes a stage of homo-sexuality, which is normally followed by hetero-sexuality (love for the opposite sex), which is the normal feature of sex-life. On account of various difficulties and frustrations an individual may either get fixated at a particular stage or may regress to an earlier one; and thus may not grow into a normal heterosexual individual. A correct knowledge of one's libido-development gives a clue to one's character.

Thus, according to psychoanalysis man is, at his very base, selfish, hedonistic, aggressive, sexual, amoral, asocial, if not immoral and anti-social, and irrational. We start in life as "polymorphously perverse"and in our unconscious we ever remain so. Our civilization and culture are only skin deep and built under the pressure of reality, which originally we never like to face. Under stress aud strain, under insurmountable difficulties and frustrations, and under the influence of unconscious factors, we tend to revert to our original nature of brute-instincts.

Supernormal Powers Of man Discovered By Parapsychology

Psychical Research gives us a glimpse of another aspect of man, which has not yet been studied and investigated by any other science. It is a scientific investigation into those strange occurrences in human life and those extraordinary powers and faculties of man which have always been regarded as matters of fact by the common man, but which were never before seriously studied and examined by investigators trained in modern scientific method. Preceded by a number of stray and individual investigations which had brought to light many a strange phenomenon, a Society for Psychical Research was organised in England in 1882 to make a systematic and scientific investigation into the alleged and reported strange occurences. Within the last 76 years this Society, and many others in other countries with the same end in view, and also many individual scientific investigators, have been able to collect such varied and important data as cannot be ignored by serious investigators of human nature.

The most important and startling discovery of psychical research, now also called Parapsychology, is that man, and some men particularly and in greater degree, is capable of acquiring knowledge of objects, and of thoughts and feelings of others, without the usual means of knowledge by the direct action of mind. This supernormal kind of knowledge formerly called clairvoyance, lucidity and cryptesthesia, is now called Extrasensory Perception (in short ESP) by Dr. Rhine of the Duke University in U.S.A. It finds expression in various forms and manners such as Telepatly (communication of thoughts, experiences, and feelings of one mind to another at a distance without the use of normal means), Clairvoyance (in a restricted sense meaning seeing, without the use of eyes, events taking place at a distance), Clairaudience (hearing sounds

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and words which convey information of distant events without the use of ears), Precognition (non-inferential knowledge of future happenings), Retro-cognition (direct knowledge of events that happened in the distant past), Psychometry (power of acquiring knowledge of events of a person's life by simply holding or handling some object used by him), Dowsing (divining the presence of water or minerals underneath the earth), Crystal-gazing (seeing veridical scenes in a brilliant reflecting surface), Automatic Writing (scribing without volition or consciousness veridical information), Inspirations of Geniuses, Veridical Statements made by Entranced Persons, and verifiable Reminiscences of "Previous life" expressed by babies. All these types of supernormal cognition (ESP) have been very carefully empirically and experimentally investigated, and have been established as facts by scientifically trained investigators all over the world. ESP or supernormal cognition has been found to have four peculiar features which distinguish it from the normal cognition, (1) It does not stand in need of the use of sense-organs, physical or physiological contact with the object, or even the immediate presence of the object concerned; (2) It does not work under the limitations of space. Distance does not affect its operation; (3) Its function is not limited in time. It operates equally well in the present, past and future. (4) It is not always under the conscious control of the person who exercises it.

Another class of very important supernormal phenomena studied and investigated by psychical research is what was called Telekinesis by earlier investigators and is now called Psychokinesis by Dr. Rhine. The former term literally means production of movements at a distance and the latter means movements effected by mind. The idea underlying both the terms is that the mind is capable of moving or lifting thing at a distance from the body without any physical contact between one's physical body and the external material object. This power of mind is symbolised by Dr. Rhine as PK. He brings both ESP and PK under one symbol PSI. According to him and many other investigators, Psi capacity is not very rare. It is potentially possessed by all human beings and perhaps by animals too. In his latest work, *Parapsychology*, Dr. Rhine writes, "The capacicy is, therefore, a normal equipment of the species"

A third type of paranormal, rather unknown normal, phenomena, investigated by Psychical researchers and other investigators is what may be called supernormal psycho-physiological effects, which are observed in miraculous cures of phyiscal ailments, effected by suggestion, hypnosis, prayer and creative imagination; in extra-ordinary control over the autonomic nervous system and the organs controlled by it. found in case of *yogis* and *faqirs*; in cases studied by psychosomatic medicine; and in all treatments brought about by Christian Science, New Thought and the use of *mantras* (incantations). All such cases evince a remarkable power of the mind over the body.

Still more and perhaps the most remarkable facts investigated by

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psychical research are Astral Projection, Materialization, Ghosts, Apparitions, Haunted Houses, Trans-personalities and Remembrance of Previous Life. In astral projection, a person can, while alive, temporarily go out of the physical body, roam about, show himself to his friends and relatives, and return with memories of his sojourn. In materialization, temporary living forms of human body or its limbs, like face, hands and larynx, are created and formed out of a strange substance, called ectoplasm, supplied by the body of an individual present nearby. These materialized forms do often resemble those of some persons no longer present in the world. Prof. Richet, in his *Thirty Years of Psychical Research*, writes about materialization, "Absurd, but no matter it is true" (p.544). In the phenomenon of ghosts and apparitions, and haunted houses we see visions of persons who are either already dead, or are still living elsewhere. In trans-personality we have a very strange phenomenon of a person passing into a trance or temporary and partial or complete suspension of consciousness, and his body and speech being apparently used by those who no longer exist in the world. In cases of memories of the previous life we find young children remembering some events which occurred in the lives of persons who died long ago and with whom identity is claimed. Such cases are quite common in India.

On the basis of these data psychical researchers, many of whom are great scientists and philosophers of the world, have come to a conclusion that man is not the physical body alone, that his mental activities are not merely the functions of his bodily organs and systems, that in his deeper nature he is not merely the unconscious and brutish id, but, on the other hand some very superior type of psychic principle. This psychic principle, call it mind or soul, is capable of existing and functioning independently of the physical body. As such, it survives the death of its physical body with which it was temporarily associated. Before getting associated with the present body, it must have been associated with some other body, now dead and gone ,whose life it sometimes recalls. Potentially, this psychic principle has great powers of knowledge and action. It is capable of effecting a lot of changes in the physical body. This psychic principle is not governed by mechanical laws of matter and is not limited in its operations by time and space. It is not born with the body, nor does it perish with it It has got a life and be ng of its own, and perhaps, in a psychic world different from the physical one.

Experience Of Mystics

Mysticism is an attempt to withdraw from the affairs of the external world and from the activities of the physical body into the being of the psychic principle in order to understand and realize its nature and potentialities. In this attempt the mystic comes to have very strange and fascinating experiences within himself. When the mystic passes into the deepest recesses of his being, he experiences a state of inner illumination in

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which all sense of individuality is lost, in which no kind of duality or multiplicity is experienced, and in which there is a feeling of supreme delight which was never experienced in the enjoyment of sense-pleasures. In the literature on *Yoga*, Indian mysticism, this unique experience is called *Samādhi*. Here we touch the very essence of our being, and, in the words of Patanjali, exist as "*Swarūpmātra eva*" (pure Self alone).

Mystic experiences of various kinds and grades and experience of *Samādhi* are not mere hallucinations. They are facts which can we experienced by all those who follow the particular disciplines which lead the seeker to them. In a complete understanding of man we cannot afford to neglect them. Mystic training is important from another point of view also. As a mystic proceeds along the path of Self-realization, he automatically gets most of the supernormal powers (*siddhis*) which Psychical Research has discovered some persons to possess sporadically. Great miracles have been performed by the great mystics of the world. In Chapter III of *Yogasūtras*, Patanjali makes a mention of the great powers that a yogi comes to acquire in the course of his training in *yoga*.

Epistemological Analysis Of Human Experience By Advaita Vedanta

Epistemological Analysis of Man by the Advaita Vedanta, which takes note of all the aspects and forms of human experience, and of all the epistemological factors involved in it, is, therefore, capable of doing greater justice to the understanding of man than any science so far has done. Vedantic analysis of human experience is thoroughly systematic, rational and comprehensive. Taking the entire human experience in view, the Vedantist discovers and points out four distinct *types* in it, namely, Waking, Dream, Deep Dreamless Sleep (slumber), and Mystic Trance (*Samādhi*).

In the waking experience the subject of experience (Self) is associated and identified with the physical body which functions in the physical world. In this state he is aware of external objects as existing independently of him and of himself as one of the objects of world, all governed by the laws of nature operating in objective and stable time and space.

When a man is physically tired and goes to bed, his waking experience vanishes and he begins to experience a world of dreams. Here he has a different body to use and a different world to live in. Although the dreamer does not know it, the stuff of the dream-world is thought. Everything therein is ideal in structure. The time-space order of the dream is quite different from that of wakefulness. Stability, identity and causality of dream are quite different. Objects and persons, time and space, cause and effect change in no time in dream. The body experienced in dream is quite also different, and performs different functions and acts, from the physical body of the wakeful experience and its functions.

In the third state of experience, namely the deep dreamless sleep, the worlds and bodies of dream and wakefulness pass into nothing, vanish

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from the experience of the sleeper. Still there is some experience, for on waking we remember to have been in deep sleep when we experienced nothing objective. There we are aware of *nothing*. This experience is characterised by intense pleasure, and every person desires to enjoy it. We do not cease to exist or to be aware in sleep.

Quite different from and perhaps superior to all these states of experience is the fourth state (*turīya*), *Samādhi*, or mystic trance. The deepest state of *Samādhi* is that of objectless and thoughtless experience characterised by supreme delight. Time, space, objectivity, duality, plurality and individuality, all vanish, leaving awareness (consciousness) alone shining in its pristine purity and native joy. There is a feeling of infinity, fullness and satisfaction, which is beyond all description.

Having discovered that man is capable of experiencing these four states of existence, the Vedantist tries to understand the necessary epistemological and metaphysical implications of human experience. Despite variation and changes in the states of experience and their objects, the ultimate experient (subject of experience) remains identically and unalterably the same. It is one and the same subject who experiences all the states and objects or absence of objects therein. Otherwise how could it be said that all the four states are those of the experience of the same subject. That which changes not and remains identically the same in the midst of changing circumstances and environment must certainly be regarded as something different from and independent of them. It is, therefore, clear that the witnessing Self (awareness or consciousness) is something different from the witnessed states and their objects and it exists in its own right. It is always the subject, and never an object, for to know it as an object we have to presuppose it as the subject of our knowledge.

The Self cannot be a mere series or stream of changing ideas and feelings, for in that case the feeling of personal identity and sameness from birth to death would not be experienced. Consciousness of succession implies a non-successional principle. To experience all the changes from birth to death an unchanging witness is necessary. A continuous and identical principle is presupposed by the fact that we remember past experiences of our life. The consciousness of personal identity and continuity that we all have implies the existence of an identical and unchangeable Self.

This Self cannot be identified with any object experienced in any of the states nor can it be said to have any objective quality, for in the fourth state (*turīya avasthā*) it exists as bereft of all objective contents and qualities. The object and their qualities changing with the change in states, how could the unchanging Self be identified with any one of them.

The real nature of the Self, therefore, can only be that which persists unaltered throughout the entire experience. But as we are too much engrossed with the objects and have eatablished identity with some of

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them, our own existence and nature are thrown out of focus. It is only when we try to discover the Self by analytic thinking and when we have a glimpse of it in *Samādhi* that we come to know what we really are. From the above mentioned considerations we come to a conclusion that the Self in us, whatever it be in its own nature, is one and the same throughout our existence from birth to death, and throughout the changing states of experience.

The question of all questions, however, namely, "Does the Self come into existence at birth of the physical body and does it perish at its death ?" Still remains to be answered. The Vedantic epistemology gives a very clear and convincing reply. It says that there can be no proof of the birth and death of the Self, for no body has ever experienced them. Births and deaths of physical bodies alone are witnessed by us, but never of the Self. The Self not being a physical object, no body can perceive it being born or doing. The Self alone can be a witness to what happens to itself. It cannot witness its birth for it must pre-exist to witness the event. It cannot witness its death for it must exist at the same time when it is dead. The Self has actually never intuited its birth and death. Its existence has never been touched by myriad changes in its experience. So the Vedanta concludes that the Self, the ultimate subject of our Experience, is eternally present. It transcends time.

That the Self is immortal witness of all the states of experience and of all the changes in the physical body, and that in its purest existence it is characterised by joy, is the least that can be said about it. Its real nature in its fullness ramains beyond our present state of knowledge. The powers and potentialities of the Self are incalculable and unimaginable, as the yogis who are able to withdraw into the Self by meditation and contemplation come to possess many miraculous powers, some of which have come to the notice of Psychical Research.

The Vedantist further points out that the deeper we go into the experience of the Self the nearer and closer we are to one another (as some of the paranormal experiences indicate), and in the deepest state of *Samādhi* all differences and distinctions of individuality are obliterated, and a feeling of fullness and perfection is enjoyed by every one. This indicates that ultimately we are all rooted in the same Self which is the very root, heart and core of the entire world-experience, the Universe. Thus, in *Samādhi*, we touch the Ultimate Reality in which we are all rooted. It is possible to make this realization perpetual in our every day life.

Value Judgments, Ethical Urge, And Religious Aspirations of Man

Value Judgments, Ethical Urge, and Religious Aspirations of man throw still more light on the nature of man. Whatever the particular concepts of truth, goodness and beauty, every man aims at truth in kno-

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wing and thinking, at goodness in conduct, and at beauty in creation and appreciation. For the attainment of these he is prepared to undergo hardships and to make sacrifices; and in pursuing them he feels that he is acting like a man. Truth, goodness, and beauty, therefore, seem to be the highest values for man, in comparison to which worldly goods and pleasures are much inferior.

Similarly, men may, and do, differ among themselves in judging whether a particular action is right or wrong, but all men agree that they *ought* to do the right. We seem to have a power of discriminating between right and wrong, and also freedom and power to choose and do the right. No man feels happy after having done wrong. Despite all their sacrifices and sufferings, the righteous alone seen to be happy.

In the same way, men differ in their religious beliefs and practices, but the longings and aspirations which find expression in religion are the same or similar in all men. In spite of all that is contrary in experience, every man desires that all his desires should be fufilled. He longs for immortality, for security, for happiness, for omniscience, for omnipotence, for justice in life, for love and goodwill, for victory over suffering, old age and death, and for some secret to get all his desires fulfilled. He has an inner and unshakable faith that he can be what he longs to be with the help of a teacher, prophet of God. All religions are expressions of this faith, hope and imagination. One may agree with Freud that all religions are illusions, bu it is difficult to deny that man needs religion to save him from despair, frustration and neuroses. Either nature tantalises and mocks at man or man's innermost longings must be fulfilled here or hereafter.

What Then Is Man ?

Thus, taking all the data about man into consideration, we conclude that man is too deep, too complex and too many-sided to be fully understood in terms of any of the objective and physical sciences; and that the materialistic, mechanistic, chemical and biological conception of man is very superficial, partial, and unsatisfactory. A life lived in accordance with this view is a life partially lived, lived on the surface, or on mere fringe, and, therefore, to a great extent, wasted.

Although our knowledge of man is still very meagre, vague and shallow, there is no doubt that in addition to being physically embodied man is mental and spiritual, and his potentialities which can be actualised here and now are unimaginably great. The highest purpose of life seems to be the unfoldment and realization of spiritual potentialities here and hereafter, for want of which man is miserable.

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THE INDIVIDUAL AND MARXISM

WALTER ODAJNYK

THERE exists a serious gap in Marxist theory, a gap which has become painfully noticeable in the last decade—it is the omission of many vital matters concerning the individual.

Several present-day Marxists (the Polish philosophers. Schaff and Kolakowski) admit that Marxist theory has been lax, if not totally oblivious, in the treatment of the subject of the individual. This has come about, Adam Schaff asserts, primarily because, Marxism's "close association with the revolutionary working-class movement had made it concentrate on the laws of social development,on the laws of transition to socialism and of socialist construction, on questions relating to the movements and struggles of the masses.As a result of this practical, political preoccupation of Marxism,matters connected with the individual human being and his specific problems were pushed into the background."[1]

These problems did become issues of practical importance for Marxist thinkers in the post-Stalin era with the revelation of the so-called "errors and excesses of Stalinism". The problems revolved mainly about the following questions: (a) the individual and his place and role in history. (b) the individual's responsibility in personal and political life (questions of conscience and morality), and (c) the problem of individual freedom versus social determinism (an issue posed by existentialist philosophy). Of course, these may be treated as three separate and distinct problems, however in Marxism they are not independent of each other but closely related so that a discussion of one has a direct bearing upon the others. Nevertheless, for the sake of convenience this essay will be divided according to the above points and it is hoped that the interreatedness of the questions will be self-evident as the discussion proceeds.

The first point—the individual in history—does have a solid background in orthodox Marxist theory whereas the others do not.Therefore, the treatment below will be first concerned with providing a Marxist historical setting in which the individual supposedly operates. With such an outline completed it will be then possible to pose questions and arguments when dealing with the final,and in many ways,more urgent points.

Lastly, it cannot be the aim of this essay to provide an exhaustive and detailed study of the matters under consideration. It is hoped, however, that the essay will raise the necessary problems and indicate the direction in which they may be oriented for further discussion.

The Individual in History

1, Adam Schaff, 'Marxism and Existentialism--I,' MONTHLY REVIEW, May 1962, p. 15.

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The topic under this heading lends itself to a two-part division: the individual in the history of the future, and the role of the individual in the history of the past.

Marxism being a strongly teleological philosophy, it is best to begin with the future, with the aim that it predicts for human history and for the individual as part of that history. Erich Fromm attempts a summation on this aspect of Marxism by stating: "For Marx the aim of socialism was the emancipation of man, and the emancipation of man was the same as his self-realization in the process of productive relatedness and oneness with man and nature. *The aim of socialism* was the development of the individual personality.[3](Italics added)The historical end which Marxism predicts (or prophesizes ?) is therefore the development of the individual personality,but not in the common place meaning of the word "individual", for it speaks of a mystical at-oneness with nature, with other men: it speaks of self-realization. The idea here being that the individual is an integral part, first of nature, and second of society and that it is nonsense to speak of an individual as an abstraction of a separate entity divorced from his environment. He is able to discover and develop his individuality, or his individual personality, only in society. Any other view of the individual would be unrealistic, For if an individual did somehow manage to subsist and develop outside of society such an individual could no longer be called a man: and Marx would conclude with Aristotle, that he is either a god or a beast.

What has happened in past societies, claims Marx,is that the individual has been stultified in his growth and development because the major economic systems under which he has lived so far (slavery, feudalism, capitalism) have fettered his physical, mental, and moral betterment.This has come about mainly through the phenomena of **alienation**:in all former historical societies man, both as a species and as an individual, had been forced by economic circumstances to become alienated from nature,from other men, from his own work, and even from his true self. These ideas are developed and elaborated upon in detail in Marx's *Economic and Philosophical Manuscripts.*

It is only in the socialist society,but even more so,in the communist society that the individual finally becomes free of the limiting economic and the corresponding social and intellectual fetters,and for the first time in history he has the opportunity to bring all his human potentialities to realization. Marx even went so far as to state that truly "human" history would begin only with the overthrow of the capitalist society: all hitherto existing history was merely the pre-history of man. Engels, writing in *Socialism: Utopian and Scientific*, formulated the idea in these words: "Then for the first time man, in a certain sense, is finally marked off from the rest of the animal kingdom and emerges from mere animal

2. Erich Fromm, MARX'S CONCEPT OF MAN (New York, 1962), p. 38

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conditions of existence into really human ones.[3] What Engels means by "really human" conditions of existence as opposed to animal conditions of existence is that in a socialist society man will be no longer blindly ruled by economic and social laws over which he has no control. He will become conscious of these laws and by mastering them he will ascend "from the kingdom of necessity to the kingdom of freedom."[4]

From the above it is evident that this ascent to the kingdom of human freedom is a collective movement: it cannot be accomplished by an individual without society. However, once the ascent is made the individual profits from it, as does the entire society. Once again, it is impossible to separate the one from the other because "for Marx" as Erich Fromm says,"...each individual represents the species, that is today, humanity as a whole, the universality of man:the development of man leads to the unfolding of his whole humanity."[5] And what is perhaps even more correct—the development of humanity (society) leads to the unfolding of the whole personality of man, the personality of each and every individual.

The second topic concerning the individual and history is in some ways less philosophical and more realistic than the above, for it deals with the concrete question of what exactly is the role of an individual in the movement of history. Stated in more precise terms, the question is whether history is determined by the actions of individuals, or whether history is primarily determined by forces other than the actions of individuals. One of the major premises of Marxism is exactly that both history and the actions of individuals are determined and shaped by economic forces whose motto is the struggle among classes over the control of these forces. Thus the first sentence of the main body of the *Communist Manifesto* reads, "The history of all hitherto existing society is the history of class struggles."[6] The economic base, of the forces of production, also determines and forms what Marx calls the superstructure of society: a society's laws, religion, morals, art, philosophy. The superstructure changes in response to changes in the producing forces. Also, the dominant economic class in society because of its economic superiority exercises the greatest influence over the form of the superstructure and twists it to its own economic needs. This means that as long as there exists more than one class in a society, there also exists more than one superstructure—more than one religion, morality, art, philosophy. This multiplicity of superstructures is usually hidden and most men are not conscious of it, as indeed they are not conscious of even the economic and social principles which guide their behavior. Also, law is usually an exception to this rule of multiple superstructures because normally

3. BASIC WRITINGS ON POLITICS AND PHILOSOPHY: KARL MARX AND FRIEDRICH ENGELS, ed. Lewis S. Feuer (New York, 1959), p. 109.
4. Ibid.
5. Fromm, p. 49.
9. Feuer, MARX AND ENGELS, p. 7.

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the economically stronger class gains control of the power of the state in order to further its interests and therefore shapes the laws to conform to those interests. (This phenomenon is one reason,according to Marx, why criminality is more prevalent in the poorer classes whose economic interests are not represented by the laws.)

It follows logically from all this that the consciousness of the individual is determined—unconsciously—by his social environment; by the superstructure, by the interests of the class he belongs to, and in the final analysis, also by the forces of production. Indeed the consciousness of mankind was nurtured and developed exactly by the growth of the producing forces.

All the above ideas are summarized by Marx in the following manner: "The mode of production in material life determines the general character of the social, political, and spiritual processes of life. It is not the consciousness of men that determines their existence,but, on the contrary, their social existence determines their consciousness."[7] In odrer to complete the main concepts in this aspect of the theory let us add one more relevant and revealing statement by Marx, a statement which really is a logical outcome of the former conclusion. Marx says, "...mankind always takes up only such problems as it can solve, since, looking at the matter more closely, we will always find that the problem itself arises only when the material conditions necessary for its solution already exist or are at least in the process of formation."[8] We now must conclude that any influence that the individual can exercise upon history, upon society, and even upon ideas, will be negligible; and conversely, the influence that the economic forces in the form of history and society have upon the individual shape his entire life, thought and activity. The individual in Marxism, as in the philosopy of Hegel, is somewhat of a pawn, or to speak more euphemistically, an **expression** of the forces of production, or in the case of Hegel, of the *Weltgeist*, which through their activity and development determine and shape all historical and social phenomena. The individual has no power over these forces; they develop without his will or consent. He may learn to understand them and thus manipulate them to a certain degree. However he can never hope to change their basic pattern and movement; his resistence to their power is but wasted and useless effort. His only constructive activity can consist in aiding their development.

Yet the situation is not as hopeless and as fatalistic as it may sound. True, the economic forces provide the conditions in which man exists and works, however it is still **man** who makes history. "Human history as a process expresses laws, but does not proceed independently of man."[9] Such is the Marxist formulation of the matter. The means of production,

7. Ibid., P. 43
8. Ibid., P. 44
9. George Plekhanov, THE ROLE OF THE INDIVIDUAL IN HISTORY (New York 1940), Editor's Preface, P. 7.

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the economic life of a society cannot of course grow and develop and function without the work of man, and it is here therefore that the individual can and does play an important role. But what is his role ? The most prominent examples of men influencing history are to so-called great men of history. What exactly is their influence upon history ?

George Plekhanov in his essay on *The Role of the Individual in History* states:

> A great man is great not because his personal qualities give individual features to great historical events, but because he possesses qualities which make him most capable of serving the great social needs of his time, needs which arose as a result of general and particular causes...He solves the scientific problems brought up by the preceding process of intellectual development of society; he points to the new social needs created by the preceding development of social relationship; he takes the initiative in satisfying these needs. He is a hero. But he is not a hero in the sense that he can stop, or change, the natural course of things, but in the sense that his activities are the conscious and free expression of this inevitable and unconscious course.[10]

The great man therefore, as the most outstanding example of an individual who does have an influence upon history, can influence history only in the direction in which it is already moving. He is great because he is conscious of the direction of this movement and because he possesses personal qualities which enable him to move ideas, people and society towards the determined end of the period in which he happens to live. He aids the historical process; he brings it to fruition more quickly, and perhaps less painfully. He cannot, as Plekhanov says further, "foist on society relations which no longer conform to the state of these forces (the forces of production), or which **do not yet** conform to them." [11] He cannot. therefore, either hinder or speed up the process to any significant degree. Plekhanov admits that an individual 's moral and mental qualities do have an influence upon the course and the outcome of certain events, and that many events cannot be explained solely by some general laws of development;he even provides vivid examples from European history. Yet he still insists when concluding his argument that in the long run and in the last analysis these"accidents"have little or no influence upon the general development of history. Individuals can affect particular events but they cannot change the general trend. The historical process is stronger than any individual. And what is more, to be logical and consistent the theory must also maintain that when the need arises the individual will come:no individual,no great man is indispensible;history will always find a replacement,and even if he is not found it will still proceed to the same end with the help of several less distinguished and less talented men; it may take a little longer to reach that end, but that is all. Engels in one of his letters writes. "That such and such a man and pre-

10. Plekhanov, pp. 59-60
11. Ibid., P. 60.

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cisely that might arise at a particular time in a particular country is, of course pure chance. But cut him out and there will be a demand for a substitute, and this substitute will be found, good or bad, but in the long run he will be found" [12] This holds true for rulers, statesmen, scientists, artists, for everyone. Thus, Marxists argue that had there been no Robespierre, and Napoleon, or had they died sooner than they did, this would not have changed the main course of events; Robespierre and Napoleon could have been replaced by other men; the French Revolution would have proceeded in more or less the same manner as it did; and the French armies would have been still victorious throughout Europe. To be consistent Marxists must hold the same premise when discussing the works of great scientists and artists: Newton, Michaelangelo, Shakespeare, Beethoven, etc.

But the arguments here become weak and flimsy and it is questionable whether it can be sustained. Much of it depends upon *a priori* and *a fortiori* assumptions which end all discussions. Even the examples from history can be questioned profitably, as they have been by Sidney Hook in *The Hero in History*. And even if the personal qualities of, say, Stalin and Khrushchev have no influence upon history in the long run, what an important influence they do have upon the life of the Soviet society, and particularly upon the lives of individual members of that society. And individuals live and suffer and die in the present, not in the future, perhaps the life, for example, of Bukharin would never have had any great affect upon history, however, his treacherous death certainly was not without meaning and import for himself, for his family, and for his friends. Was Stalin a historical necessity ? Was Bukharin killed by by Stalin or by history ? If history and the forces providing its movement give rise to great men, do they also provide the human corpses over which these men clamber on their way to greatness ?

The Individual and Moral Responsibility

It is but a natural step from the questions raised in the preceding paragraph to a consideration of an individual's moral responsibility in Marxist theory. It would follow from tne Marxian theoretical framework that since the consciousness of an individual in a particular period is a product of the surrounding socio-economic forces his actions and his thoughts are basically determined and therefore he exercises little choice and little responsibility over them. And Marx does admit this fact. He writes : "My standpoint, from which the evolution of the economic formation of society is viewed as a process of natural history, can less than any other make the individual responsible for relations whose creature he socially remains, however much he may subjectively raise himself above them."[13]

12 Feuer, MARX AND ENGELS, P. 411.
13 Ibid., p. 137.

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All this is fine; but it is speaking theoretically and in general, and the problem which concerns us here is very practical and very particular. Marx never seriously deals with the problem of an individual facing a moral choice. He has studied many only from one aspect—his socio-economic relatious—but he has overlooked another equally important aspect of man—his psychological make-up. Man is not a machine; daily he faces concrete choices--moral choices—choices for which he feels he must bear the responsibility. He does not make such choices lightly or automatically, and even if he is guided in his behavior by a certain view of life and on history the choice is not always clear-cut ; sometimes it is even a choice among actions all of which may not be appealing to him, all of which he may consider incompatible with his conscience or with his understanding of history. Marx and his theory give the individual no aid in this predicament.

What answer would Marx give to an individual who said to him, with the Intellectual from one of Kolakowski's essays, "If you represent a specific historical reality, on what basis do you ask me to affirm it morally merely because it is a reality ? I will not support any form of historical reality solely because somebody persuades me that it is inevitable, even if I believe in its inevitability, for which, by the way, I have no evidence. If crime is the law of history, then does my awarenes of this law suffice to make me a criminal ?" [14] The same argument, stated in a less dramatic fashion, is posed to Marxism by Karl Popper : "Whether we should accept the morality of the future just because it is the morality of the future, this in itself is just a moral problem. The fundamental decision cannot be derived from any knowledge of the future."[15] And furthermore, he adds, "it is clear enough that the theory depends largely on the possibility of correct historical prophecy. If this is questioned—and it certainly must be questioned—then the theory loses most of its force."[16]

But let us suppose that I agree with Marx's theory; suppose I agree that history proceeds by inevitable stages to a utopian end; suppose I agree that all morality is class-morality and therefore relative, and suppose I choose to adopt the morality of the proletarian class since it is the morality of the future and in some ways superior to the morality of the past. Suppose I agree and adopt all these views; what then do I do in the case of Stalin. Here we have a man who is educated in socialism; who represents the vanguard of the proletarian class, who is the leader of a mighty socialist society. His entire consciousness—thoughts and actions are shaped and formed by socialist ideas and socialist surroundings. And

14 ESSENTIAL WORKS OF MARXISM, ed. Arthur P. Mendel (New York, 1961), p. 350.
15 SOCIETY, LAW, AND MORALITY, ed. Frederick A. Olafson (New Jersey,) 1961, p. 292.
16 Ibid.

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what is the result of this socialist upbringing; what is the product of this socialist society ? He lies; he kills innocent people; under false pretexts he even murders some of the most prominent members of the socialist revolution in Russia. In general, he is a merciless despot and an absolute tyrant. I live under Stalin, I am one of his co-workers. His methods repel me; I see his "errors and excesses". He assigns to me tasks which I cannot reconcile either with my conscience or with my idea of what is beneficial for the working class and for the future society. What do I do ? Didn't Marx say that historical periods and events produce the men needed for the tasks of that period. Is not Stalin's rule therefore inevitable, and if inevitable is it not also true and good and right. I do have an alternative : I can withdraw from political life. But what if I don't want to do that; what if I want to participate in history, if I want to aid its development. My only choice then becomes to obey Stalin, to aid his designs, to act perhaps even more ruthlessly than he, for then I am really bringing Communism sooner to the earth. Here the argument begins to turn nonsensical.

The above argument utilized Stalin only as an illustration, for it is equally valid for other men and for other periods : for Hitler, for the Catholic Church in the Middle Ages, for Negro, etc. And the problems of individual morality that arises in each of these periods are also always the same. Even if it is argued that Stalin or Hitler were accidents who in no way altered the main trend of historical evolution, even then the moral problems for the individuals involved do not disappear or change for the better. On the contrary, they may become more complicated, for then one has to decide whether to support or oppose the accident especially if such an accident lasts a lifetime and if it is not totally off the main course of history, as in the case of Stalin. And how is one to know what is an historical accident and what is historical necessity. For these problems Marxism has no answers.

Similarly, taking the matter one step further, Marxism has no answer for the individual who asks, "Why, what for am I to do this or that;" or, "What is the purpose and the meaning of all my actions, of all life, if in the end I die anyway ?" To answer by references to some promised future society may have little effect upon the individual's attitude towards the present even if he agrees that the future society may be a very pleasant place to live in. And he may also inquire, "Once such a society is achieved, what then ?" The same questions can be asked even in that society, and again there are no answers to be found in the writings of Marx.

And what is one to make of Marx's statement, quoted previously, that ".....mankind always takes up only such problems as it can solve. ....."[17]. True, he was speaking perhaps of economic, or scientific, or

17 Feuer, MARX AND ENGELS, p. 44.

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even artistic problems; but if man's consciousness is a product of matter and is molded by socio-economic forces, then for the theory to be consistent even the above mentioned problems of morality and of life must be included. (Indeed, one of Marx's criticisms of Feuerbach is that what Feuerbach regards as the "religious sentiment" is itself a social product and not a product of some abstract sensation or thought divorced from society.) According to the theory the answers should be forthcoming out of the "material conditions" which give rise to the major problems of human existence. But can that be ? Isn't it a question of two separate and irreconcilable categories ? Isn't it sort of like looking for diamonds in a latrine knowing darn well that there are no diamonds there.

No one will deny that the above questions are of primary importance for many individuals and for mankind as a whole, often even more important than economic matters of class interests. In these matters, therefore, in the problem of individual responsibility, in the questions concerning the purpose and aim of existence, in these very vital and very practical questions of life Marxism is bankrupt.

The Individual and Freedom

If the individual is not free to make his own choices and decisions, if he is totally guided in his conduct by outside forces, then he is not free and neither can he be held responsible for his actions—morally or legally. In the previous section it has been shown that even given the determinism of Marxist theory, problems of moral responsibility and moral choice nevertheless still do arise. In this section the theory's determinism will be brought forth again but now in direct reference to an individual's freedom.

A more precise formulation of the topic under discussion here would be to ask the question whether the individual is determined in his actions and thoughts by certain social or economic forces outside of himself, or whether he is, or can be, free of these forces. It is a question which bears directly upon the ideas raised by existentialist philosophy.

Once again, a Marxist must argue that the individual cannot be divorced from society and that society cannot be divorced from the laws guiding its development, and therefore the individual is basically bound to these laws as he is bound to the laws of nature which affect his body. More, it is unrealistic and childish to wish to be free of such laws. True freedom does not consist in a quixotic striving after liberty from social or natural laws, but in the recognition and the understanding of these laws. Once the laws are understood man is no longer bound by blind necessity but becomes free: free in the biblical sense of "You shall know the truth and the truth shall make you free." For once the laws are known, they may be, to a certain extent, manipulated and controlled for man's benefit. It is in this sense that Hegel's cryptic remark—freedom is the recognition of necessity—must be understood. Marx heartily concurs with Hegel's view, but adds that simply to recognise necessity or reality

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is not enough; the more important task is to change reality.

The same subject is presented in still another manner by Adam Schaff, who perceives the main problem and the main opposition between Marxism and Existentialism in the question "……whether, in our analysis of human problems we should take as our point of departure the 'autonomous' individual who chooses his line of conduct in a fully arbitrary manner and thus creates what we call social life; or whether we should rather proceed in the opposite direction, beginning with society which shapes the individual and determines his conduct."[18] The answer of Marxism on this point is clear, and Schaff quotes Marx, "……the human essence is no abstraction inherent in each single individual. In its reality it is *the ensemble of the social relations*"[19] (Italics added.) In other words, again, it is man's social existence that determines his consciousness and not vice versa.

Using the words of the last sentence in a slightly different sense an existentialist would admit, that **unfortunately** is it true that man's consciousness is determined by his social existence. It is true that most men are not free or responsible in their thoughts and actions for they are blind to the social forces that move them: to law, habit, custom. They accept all these forces without ever questioning them and their validity. They live, therefore, not a fully human existence but something similar to a vegetable existence. Marxism postulates more or less the same idea when it speaks of man being alienated from his trueself,or when it speaks of the laws of historical and social development which man has obeyed blindly and unconsciously up to the present time. For example, Marx writes,"In the present era domination of thing-relationships over individuals,suppression of individuality by accident,has assumed the sharpest, most universal forms possible and has thus confronted modern man with a well defined task.The task is this:instead of permitting relationships and accidents to dominate over individuals,to establish domination by the individuals over accidents and relationships……This task,dictated by contemporary relationships, coincides with the task of organizing society on a communist basis."[20]

Both philosophies therefore give their consent to the proposition that man in contemporary society is not as yet free and truely human. However, the causes of this lack of freedom and humanity and the remedies assigned for it by the two philosophies differ drastically.

Marx finds the causes of man's bondage in socio-economic forces, and full human freedom is to be attained by a rearrangement of these forces.Existentialism assigns the causes to an individual's own consciousness, and the gaining of freedom then consists in a change of consciousness. Marx also maintains that the change from the one type of life and

18. Schaff, "Marxism and Existentialism--II." MONTHLY REVIEW. June 1962, P. 101.
19. Ibid., P. 103.
20. Pyama P. Gaidenko, "Existentialism and the Individual," THE SOVIET REVIEW July 1962, P. 18.

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consciousness to a more complete type of life and consciousness is inevitable. and that the emancipation must be accomplished by all men together, by the entire society. For existentialism the matter is not determined by inevitability,or by any historical time-passage, even if the passage, be to a materially, morally, and cognitively higher stage.The change of consciousness that the existentialist speaks about has little to do with a growth in the knowledge of history, of society, or of the universe; it is a difference in quality:a leap from one plane of consciousness to another plane of consciousness. It is more of an emotional change rather than a cognitive change;however in the process cognition too undergoes a metamorphosis. Also, it is an alteration that can be brought about only by the individual; it cannot be done *en masse*. The partial formulation of this existentialist view given by one Marxist writer is correct: "Therefore it is not reorganization of the social relationships themselves,not changes in the mode of production, but alterations in man's consciousness that will restore him to true human existence and will again convert him—this **thing** he now is—into an individual."[21] To this, Marxist could never assent. The entire existentialist conception smacks too much of idealism (Making matter or the material world dependent upon consciousness or thought; materialism holds the opposite view.), and Marx and Lenin had already demonstrated the falsity and the unreality of all idealist philosophies.

The gulf is unbridgeable particularly since according to the existentialist conception of freedom and consciousness an individual can live in the socialist society, even in the communist society, and still go about his daily commonplace life without any real awareness of what it is that he is doing, or what it is that is being done to him. It is interesting, in concluding, to once again quote the passage by Erich Fromm given in the very first part of this essay: "For Marx the aim of socialism was the emancipation of man, and the emancipation of man was the same as his self-realization in the process of productive relatedness and oneness with man and nature. The aim of socialism was the development of the individual personality."[22]An existentialist would reply that self-realization—the highest possible human freedom—is an individual process which has nothing to do with the processes of production, and which is not in the least dependent upon the development of society and history from one stage to another. "Know Thyself" is a motto left to us by the ancient Greeks.

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21. Ibid., P. 19.
22. Ibid., P. 38.

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WORLD ORDER AND THE DILEMMA OF MODERNITY

BERNHARD MOLLENHAUER

WESTERN culure has been, historically speaking, on the defensive for more centuries than the average person is aware of; and yet it is no exaggeration to say ours is a unique crisis whose peril is the measure of the call of this age to greatness. At the portal of tomorrow seems written Dantesquely the fateful words of Spengler who saw in the dilemma of modernity irreconcilable conflicts that would destroy Western man. These hurrying years have proven him often right but assuming him wrong and we elude a final catastrophe, the questions still haunt us: How will the content of our cultural heritage from Judea, Greece and Rome be preserved under the eroding conditions of an Age of Technology ? How can we find the road to peace through world order when international law is almost a dead letter?

Social evolution may underwrite the hope of final peace but we have lost this Victorian faith in progress and belief in the mission of Western man, though he alone has developed the science of nature and organized knowledge in ways that give it universal application and world significance. Spencer predicted the industrial spirit would supplant militarism as it did feudal anachronisms. But curiously enough the industrial age is not only more warlike but brings the uniquely terrible crisis of modern times. We have seen the strange spectacle of a world civilization turned against itself, a new barbarism and cult of war arising among literate people using all the technology of civilization yet who turn against it and repudiate all human values. Science is exploited by those who deny the values and human insights that made the dominance of Western culture and science possible. Its very progress precipitates only more social chaos. Thus the problem of world order becomes the question of existence or non-existence.

There are understandably many like Spengler who see no progress through history of mankind as such, and who believe war the natural fate of man. Others like Prince Kropotkin stressed the factor of mutual aid in social evolution that may underwrite the hope of peace. Karl Jaspers sees the beginnings of the road to world unity in a few historical origins, in a minority of man, to be sure, and yet in these a school of political liberty. Immanuel Kant (1724-1804)an admirer of the American experiment in democracy, believed the trend of social evolution contained a plan of nature to evoke political institutions, modes of thought, under which human minds could find their highest and freest expression.

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It is a slow process but should not be discouraging for as Greek sages remind us self-conscious knowledge is an evening knowledge late acquired. The Owl of Minerva does not start on his flight until the evening shadows have begun to fall.

The Greeks made the first experiment in democracy and left us an ideal of rational criticism and active participation in government as exemplifying the free intellectual life. They undergirded Western tradition, with three essential principles: 1. nature as object of scientific thought, 2. the validity of man's waking consciousness and critical thought 3. the validity and essential dignity of the human self. This latter concept points to the Christian emphasis on the worth of the human soul. Greek Idealism paved the way as did Stoicism, for Christianity with its broad conception of world brotherhood.

In search for a basis of international co-operation oriented to "the Great Tradition" we find ourself, like St. Paul, faced with the problem molding a new social order in a world whose modes of thought are so alien to that vision, in a world of conflicting aims losing the certitudes of yesterday and faith in the future. He voiced a vital principle when he said to the Romans, "Be of the same mind toward another." This simple psychological principle of like-mindedness with the tolerance it implies must underlie any plan or a world order, inspired by a common purpose and yet allowing for social mobility and cultural pluralism. The quest for disarmament, a warless world free of war debts and a common premise of human living together must come from an understanding of civilization as the common adventure of mankind in which the most advanced nation is in a sense the most indebted one. The era of isolated national histories is already passed and all histories become world history in which we all rise together or go down together. The democratic countries have been very responsive to experiments in international thinking. Kant saw in them the potential friends of peace and the only true world order in a plurality of such liberal states.In his thoughts on world peace through international order he suggested not a world state but a group of republics in which any traveler would find conditions of statehood according him basic human rights. A world state is not possible or even desirable but a world order of interpenetrating sovereignties consistent with the integrity of each national tradition seems our only alternative.

The Hellenic-Christian mind faces a greater crisis than the fall of Rome for its new enemies believe they have an inherited mandate for world revolution and their ideology makes a religion out of materialism and economic determinism. Gabriel Marcel acutely points out a social order, or ideology, that denies the place of contemplation, or rights of speculative thought leads us inevitably on the road to a hatred of wisdom. And this involves a rejection of the eternal claim to seek truth. a denial of free criticism. of rational thought, and the rejection of human

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self-hood which alone gives valency to political rights and affirms any true brotherhood of man. There may yet be a new dark age but it need not be final. For more than half of its history since the early Dorian invasion of Greece Western culture has been on the defensive usually against Asiatic powers. The political decline of Europe is not necessarily an eclipse of the West. What is more menacing is public apathy in face of falling social and intellectual standards, the rise of the uneducated technologist, our slowness in grasping the importance of our changed position in world affairs. Of prime importance is accurate understanding of the great awakening of peoples that is taking place in less developed areas of the East. In the words of America's great philosopher William E. Hocking, "The tide of mass awakening."This silent revolution behind political facades is a spreading awareness of human possibilities and need for status in knowledge and political valency.It is part of the flight from colonialism and struggle for national fulfillment.

We face our hour of decision with high aims at home and misunderstanding and divided loyalties abroad.We need a new vibrant integrating faith in our own American traditions, a new sense of a perilous responsibility in world leadership. New forms of political life must be encouraged among those we would serve in which human individuality can find its freest expression.Here a long view of history serves to orient us. Until recently the most striking contrast between Asia and the West was not the absence of democracy historically understandable, but the simple acceptance of hopeless poverty on the part of the masses.But now they are thinking, stirring, changing with a force capable of dissolving ancient historical forms and in their questioning is a willed answer to fate. We must foster self-understanding of political liberty in as many new nations as possible. In our new role of leadership is much hope and not a little peril.

The shadow of Totalitarianism lies across the path of many nations, to whom it appears as the rainbow promising quick relief and many things at the price of democratic procedures, mostly to those who have never known democracy.Societies that take a course of autocratic growth ever tend to build up the state at the expense of individuality and freedom. Such were the empires of Assyria, Babylon and later Rome outwardly brilliant but inwardly decadent and arresting human progress. The conscious control of a routinized life of the army and the masses fell into the hands of a small class who were the only thinking public. There was a disassociation of the conscious critical thought of the awakened mind from the subconscious life of the masses, a condition of static existence dominated by custom and suggestion. There was no real life for the individual as such and a scientific spirit could not take root under conditions where society remained static for centuries.

In contemporary literature the trend is to discount reasoned insight and intellectual urbanity, to exalt the unconscious with its impulses of

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anarchy. It is thought sophisticated to represent the primitive and presocial as the modern and ultimate. We may say man is by his subconscious nature a highly suggestible being and his subconsciousness with its suggestibility and element of irrationality has been working out on a large scale in the evolution of societies . The uplifting of man has been the costly sacrificial work of a few heroic ages, the example of a few dedicated pioneers of thought scattered more often in the smaller communities such as the city states of Greece and Italian cities of the Renaissance, Elizabethan England and Holland. In small humanist societies great minds become freer in relation to public response, in stimulating their contemporaries. Aristotle with his profound insight held the society best for man is one which has for its object not the welfare of big institutions and political structures but the highest development of the cultivated individual. Western civilization with its basic unity of spirit owes much to this ideal.

Societies of the totalitarian type have always swerved man in the opposite direction. Democracies, though inherently more pacific, are not free of a trend to collectivism and even autocratic control, especially when transplanted. Democracy set up abroad without adequate socio-economic basis is precarious at best, an easy prey to oligarchic control. Those who think we live in a liberal scientific age scarcely realize how little scientific spirit reaches the people in any country and how fragile is the shell of civilization, how powerful the forces poised to overthrow it. With the suppression of critical free thought under totalitarian rule political life of the masses takes on the tenor of the subconscious crowd-self with its primitive adoration of power and increasing susceptibility to social hypnotization, Hitler's Germany for example. In a nation, like the hypnotized subject, the aroused subconsciousness of the crowd-self is disassociated from the rational waking mind and moral will. Centuries of moral evolution are blotted out under the leader's demonic spell. It believes it thinks and decides for itself being unable to see there is no real thought and never a free decision, only the delusion of thought and the dream of action.

Modern man with change put on a pedestal is cut loose from tradition moorings with no new ethical insight, no new sanctions of moral responsibility. We find overselves with the two vital problems : How to check the trend to world chaos; how to bring scientific advance more in line with the spiritual development of man and his social needs. We are losing the feeling for Western history as the unfolding of the European spirit and our membership in the Hellenic-Christian tradition. The rapidity of social change has weakened the defenses of Western culture from within in the face of its greatest challenge from without. If we accept Toynbee's belief that the essential elements in every civilization are its culure and its religious and philosophical outlook, we can see a parallel between our crisis and the age of criticism in Greece, when it was threatened by Persia. The Greeks met the Asian threat with a crusading spi-

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rit rapidly waning in the West today. Socrates met the critical assault of the Sophists from within, bringing into clear light for the first time the primary rules of the art of thinking. He defended the rational faith in man against the first systematic assaults of skepticism. But all the eloquent criticism of the Sophists was a feeble solvent compared to the massive attacks on the Western world by the ideologies of the new Eur-Asiam forces who assert the ultimate triumph of their social philosophy and the total eclipse of the spiritual heritage of Europe.

The age of Socrates is sometimes compared to the Eighteenth Century Enlightenment of which we are the heirs. Kant who saw the immense historical importance of the revolutions in America and France called it the age of criticism and his philosophy the critical philosophy. But we are concerned here specially with his less known work "Perpetual Peace," which might be called a philosophy of the United Nations.

Kant believes it is the duty of world rulers to work for a federation of states with a code binding on all. In Article Thirteen of the United Nations Charter we have this idea of a development of international law, a government of laws not of men. The form of Kant's work is peculiar; it is written like a treaty recalling an earlier work by the Abbe Saint-Pierre who, like Kant, was a student of Rousseau.

The six Preliminary Articles stress the idea that any menace to peaceful coexistence of nations should be abolished. These six are:

1. No treaty of peace shall be regarded as valid, if made with the secret reservation of material for a future war.
2. No state having an independent existence, whether it be great or small, shall be acquired by another by inheritance, exchange, purchase, or donations.
3. Standing armies shall be abolished in due course of time.
4. No national debts shall be contracted in connection with the external affairs of the state.
5. No state shall violently interfere with the constitution and administration of another.
6. No state at war with another shall countenance such modes of hostility as would make mutual confidence impossible in a subsequent state of peace; such as the employment of assassins or of poisoners, breaches of capitulation, the instigating and making use of treachery in the hostile state.

Of these Articles 1, 2 and 6 have long been accepted in international law; Article 5 was previously advocated by the Swiss publicist, Vattel, in his Law of Nations.

After commenting on the Preliminary Articles Kant outlines the more positive conditions of peace in three Definitive Articles, as follows:

1. The civil constitution of each state shall be republican.
2. The law of nations shall be founded on a federation of free states.
3. The rights of men, as citizens of the world, shall be limited to the

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conditions of universal hospitality.

In Kant's opinion the first and second Definitive Articles must stand or fall together. For he believed the republican state is one in which every person is free and equal before the law regardless of rank. He is assuming here Locke's concept of rights inherent in the individual and prior to the state. The antithesis of this is the totalitarian state claiming to be the source of rights.

Kant believes as it was the duty of persons to support the state and respect law above force it is likewise the duty of states to support world community interests. Since he wrote the rise of international technics and conquest of space has put demands upon society far beyond the then limited resources of national states.But a new unifying force is introduced into world affairs to reinforce a moral universalism of the philosophers, with no really changed political outlook.

The Eighteenth Century Enlightenment was an age of faith in human perfectibility, of belief in man as basically good and rational who needs to be taught more than he needs to be governed. But the following era of social optimism with its blindness to the tragic facts in the background of the industrial growth of democracy spelled inevitable disillusionment. The opposite attitude of despair, cynical distrust in man, leads to a new sort of Calvinism and dark views of human nature and destiny. The almost infinite complexity of human nature with its vast potential cannot be reduced to such simple contrasting formulas: It is true that our peace seems little better than a sort of managed anarchy and we may be living only on days of grace. We urgently need an interval of peace to work out international adjustments; and the time gained is on the side of the West. It is within our choice to make use of emergent historical factors that upset the neat timetables of the Cassandras of modern civilization.History contains no inherent and inevitable dialectic,or trend toward totalitarianism and war. Curiously enough we find such fatalism among the very liberals who formerly scoffed at Hegel's Absolute Idea whose progress was denounced as ending in a German railroad station. But what Hegel said was:

> *"The history of the World is nothing but the development of the Idea of Freedom. But Objective Freedom—the laws of real Freedom—demand the subjugation of the mere contingent Will—for this is in its nature formal...Philosophy concerns itself only with the glory of the Idea mirroring itself in the History of the World."

But if mankind is to survive there is a certain inevitability in the coming of a world civilization very occidental in character and we trust not divorced from the ancient spiritual resources of the Orient. For the spirit of man stands at our door and knocks. All history awaits our answer.

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* Philosophy of History P. 456 Colonial Press 1900.

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"FREEDOM AND RESPONSIBILITY" ACCORDING TO SARTRE

R. BALASUBRAMANIAN

SARTER'S theory of absolute freedom of the human reality is unique;never has the doctrine of freedom been expounded in the most extreme form before. Man's freedom, according to Sartre, is unlimited, and the responsibility which asries as a result of this total freedom is tremendous. Man is condemned to be free; once thrown into the world, he is responsible for everything he does. [1] It is a responsibility which is much greater than we might have supposed for it involves, according to Sartre, all mankind. [2] Sartre repeatedly stresses this notion of freedom in his *Being and Nothingness*; it could even be said that this forms the dominant theme of his work in view of the fact that the for-itself or consciousness which is condemned to be free occupies the central place in his phenomenological ontology.

Sartre's discussion of the concept of freedom is refreshingly original and stimulating. We must admire the subtle way in which he leads his dialectic from the so-called translucid for-itself to the most extreme form of freedom the history of philosophy has ever presented, even though we may have reasons to reject his phenomenological analysis of the for-itself and thereby his concept of freedom. [3] The problem of moral freedom, says Lewis, "has not been conspicuous in recent ethics. This is surprising. The ideas which present it in its most formidable shape, the ideas of ought, responsibility, and of ultimate praise or blame, have been given much prominence in recent ethical controversy." [4] It does not mean that this problem has not been discussed in recent ethical literature. The problem is discussed; doubts are raised; and the ethical thinkers take sides on the issue of determinism versus free will, even though one may feel that one does not have anything new to contribute. Ross, for example, says : "No discussion of fundamental questions of ethics would be complete without some discussion of the problem of free will; and I must therefore say something about the subject even if I do not feel that I have anything very new to contribute." [5] Further, the free will-determinism controversy seems to be insoluble; and very often one gets the

1 Sartre, EXISTENTIALISM AND HUMAN EMOTIONS (Philosophical Library New York), p. 23.
2 IBID. p. 17.
3 Wilfrid Desan, THE TRAGIC FINALE (Harper Brothers, New York, 1960),p.160.
4 H. D. Lewis, "Moral Freedom in Recent Ethics," PROCEEDINGS OF THE ARISTOTELIAN SOCIETY. 47, 1947-48.
5 Ross, FOUNDATIONS OF ETHICS (Oxford, 1938), p. 208.

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nism controversy seems to be insoluble; and very often one gets the impression in the course of the discussion of this question that something is wrong somewhere. Consider, for example, what Chisholm says: "We seem confronted, then, with a dilemma: either our choices have sufficient causal conditions or they do not; if they do have sufficient causal conditions, they are not avoidable; if they do not,they are fortuitous or capricious;and therefore,since our choices are either unavoidable or fortuitous, we are not morally responsible for them."[6] And he wonders whether the theories which invoke"active power","the autonomy of the will","prime mover","higher levels of causality",etc., for the solution of the problem would enable us to escape our dilemma. Sartre's position in this controversy is clear: he rejects determinism and upholds the freedom of the individual, with the tremendous responsibility which it entails. His approach to the whole problem is not along traditional lines.

II

A brief reference to the nature of the for-itself will enable us to understand the Sartrian notion of freedom. The for-itself or consciousness stands in sharp contrast to the in-itself. Sartre conceives of consciousness as (1) impersonal, (2) intentional and (3) lack and desire. Consciousness is complete **translucidity**, facing the opacity of the object, and so there is no place for the ego in it. It is always consciousness **of** something. Because it is pure translucidity, this consciousness is intentional, that is, pointing towards that which is beyond consciousness. Thirdly,it is always lack and desire. The being of consciousness, says Sartre, is a being such that in its being, its being is in question. This means,according to Sartre, that consciousness does not coincide with itself in a full equivalence. There is this equivalence in the in-itself. Whereas consciousness is lack, the in-itself is fullness. "The in-itself is full of itself and no more total plenitude can be imagined, no more perfect equivalence of content to container. There is not the slightest emptiness in being, not the tiniest crack through which nothingness might slip in."[7] Consciousness, on the other hand, is a "decompression of Being". It is in its most intimate being "nothingness"; it always exists as not 'this' object, not 'that' object, "It is the obligation for for-itself never to exist except in the form of an elsewhere in relation to itself."[8] Take a simple act of knowing. According to Sartre, when I know this table, I state that my consciousness is not this table, and that this table is not the rest of the world. Sartre claims that this negation which takes place in interrogation, destruction, negative judgment and in every act of knowledge, constitutes the very foundation of consciousness. Consciousness is nothing if it is not **not-**

6. R.W. Chisholm, "Responsibility and Avoidability", DETERMINISM AND FREEDOM IN THE AGE OF MODERN SCIENCE (Collier Books, New York, 1961), pp. 158-59.
7. Sartre, BEING AND NOTHINGNESS (to be called hereafter BN) (Philosophical Library. New York). p. 74
8. BN, p. 78.

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hingness. Human reality is being in so far as within its being and for its being it is the unique foundation of nothingness at the heart of being.[9] In other words,human reality is a lack;it is always outside being-in-itself. To be outside being, to be isolated from being, to escape being, to stay out of the causal order of the world, means to be free. Human reality then is free. Human reality is freedom.[10]

III

The oft-repeated Sartrian formula, viz., "existence precedes essence" brings out the nature of human freedom very vividly.According to Sartre, there is no 'essence', there is nothing 'given' with which man starts. He has to make himself in the process of perpetual engagement in which he is involved. He exists, turns up, appears on the scene, and only afterwards defines himself.[11] There is no such thing as 'human nature' to start with, for there is no God or any other super-natural being to conceive it. "Not only is man what he conceives himself to be, but he is also only what he wills himself to be after this thrust toward existence."[11] Sartre brings out the same idea by means of a paradoxical statement, "man is not what he is and is what he is not". To say that the for-itself is what it is not while not being what it is, to say that in it existence precedes essence—all this is to say one and the same thing: to be aware that man is free.[13]

According to Sartre,it is impossible to define freedom;for it amounts to defining human reality in terms of a given concept or essence. Human reality makes itself and invents itself continually. It is an existence which perpetually makes itself and which refuses to be confined in a definition.[14] Freedom makes itself an act and we attain it across the act. It has no essence; it is not subject to any logical necessity. In the words of Sartre: "How then are we to describe an existence which perpetually makes itself and which refuses to be confined in a definition ? The very use of the term 'freedom' is dangerous if it is to imply that the word refers to a concept as words ordinarily do."[14] Though freedom is indefinable and unnamable, it is not indescribable. Sartre describes human freedom in different ways. Human existence is freedom;it is not the case that human reality chooses to be free. ''We are a freedom which chooses, but we do not choose to be free. That is to say, there is a freedom to choose, but there is no choice with regard to freedom" and so Sartre concludes that we are condemned to be freedom. In another passage he says: "My freedom is perpetually in question in my being; it is not a quality added on or a property of my nature. It is very exactly the stuff of my being; and as in my being, my being is in question, I must necessarily possess a certain comprehension of freedom."[15] Again, he declares: "I am conde-

9. BN. p. 79.
10. THE TRAGIC FINALE. p.20.
11. EXISTENTIALISM AND HUMAN EMOTIONS, p. 15
12. EXISTENTIALISM AND HUMAN EMOTIONS, p. 15
13. BN, p. 439.
14. BN. p. 438.
15. BN, p. 439.

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mned to exist forever beyond my essence, beyond the causes and motives of my act. I am condemned to be free. This means that no limits to my freedom can be found except freedom itself or, if you prefer, that we are not free to cease being free."[16] To Sartre, what I was is not the foundation of what I am, anymore than what I am is the foundation of what I shall be. Man is not a product of his past; he is not a product of the external world;he is not a product of the two combined."Human reality," observes Sartre, "is free because it is not enough. It is free because it is perpetually wrenched away from itself and because it has been separated by a nothingness from what it is and from what it will be...The being which is what it is cannot be free. Freedom is precisely the nothingness which is made-to-be at the heart of man and which forces human reality to make itself in stead of to be."[17] There is another significant passage wherein Sartre stresses the idea that there is no determination of human reality either from without or within and that there cannot be any compromise on the fundamental issue of the unlimited, absolute freedom of human reality. To quote Sartre: "For human rality to be is to choose oneself; nothing comes to it either from the outside or from within which it can receive or accept.Without any help whatsoever, it is entirely abandoned to the intolerable necessity of making itself be—down to the slightest detail. Thus freedom is not a being; it is the being of man—ie. his nothingness of being. If we start by conceiving of man as a plenum, it is absurd to try to find in him afterwards moments or psychic regions in which he would be free. As well look for emptiness in a container which one has filled beforehand upto the brim ! Man cannot be sometimes slave and sometimes free; he is wholly and forever free or he is not free at all."[18]

Sartre's contention that "man is wholly and forever free or he is not free at all" is a flat repudiation of "soft determinism". Just as he rejects determinism (hard determinism),he also rejects soft determinism, which has been quite fashionable during the last twentyfive years, particualrly in the writings of Schlick, Ayer, Stevenson and Noell-Smith. According to soft determinism, there is no contradiction whatsoever (1) between determinism and the proposition that human beings are sometimes free agents and (2) between determinism and moral responsibility. This is not acceptable to Sartre, for he does not attempt to make the distinction between free and unfree actions in terms of the kind of causes that are present; that is to say, he would not consider whether the agent acted following his rational desires, motives, intentions, etc., or whether he was compelled or coerced. It would be easier to follow Sartre's standpoint on this issue,if we consider his explanation of intentional act and of cause and motive.

15. BN, p. 439
16. BN. p. 439
17. BN. p. 440
18. BN. pp. 440-41

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Sartre is interested in the ethics of **doing** and not in the ethics of **being**. This is because the for-itself or human reality is a being which is defined by **action**. Contrasting the ethical theory of Kant with that of the Stoics and of Spinoza, Sartre pays tribute to the former in that it emphasises the ethics of doing in the place of the ethics of being. "For a long time the aim of ethics is to provide man with a way of being. This was the meaning of Stoic morality or of Spinoza's Ethics. But if the being of man is to be reabsorbed in the succession of his acts, then the purpose of ethics will no longer be to raise man to a higher ontological dignity. In this sense the Kantian morality is the first great ethical system which substitutes doing for being, as the supreme value of action."[19] Considering the importance of doing or acting in which human reality is involved Sartre undertakes an examination of the nature of act.

An action is on principle **intentional**. It is from this point of view that Sartre looks at human action, and this point of view is more important to him than any thing else. We can examine an act of a human being from other points of view. It can be studied, for example, from the means-end-point-of-view, that is to say, in terms of the modifications or changes which an act brings about with a view to achieve a certain result.[20] But Sartre considers it from the point of view of its being intentional, for it throws light on what is missing in the tedious discussions between determinists and the advocates of free will.[21]

An act is intentional only when the person knows what he is doing, that is, he intentionally realises a conscious project. Sartre illustrates this in the following way. The careless smoker who has through negligence caused the explosion of a powder magazine has not **acted**. On the other hand, the worker who is charged with dynamiting a querry and who obeys the given orders has acted when he has produced the expected explosion; he knew what he was doing; he intentionally realises a conscious project.[22] But it does not mean that one must foresee all the consequences of an act. It is enough if there is realisation of a conscious project to say that a person has performed an act. Secondly, an action necessarily implies as its condition the apprehension of an **objective lack**. Before a person plunges himself into action, he should have the apprehension of something which he lacks as **desirable**. "**The intention** of providing a rival for Rome can come to Constantine only through the apprehension of an objective lack." "Creating Constantinople is understood as an **act** only if first the conception of a new city has preceded the action itself or at least if this conception of a new city has preceded the action itself or at least if this serves as an organizing theme for all later steps."[23] In other words, an act is a projection of the for-itself toward what is not and what is apprehended as a desirable. A

19. BN, p. 431.
20. BN, p. 433.
21. BN, p. 436.
22. BN, p. 433.
23. BN, p. 434.

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person has to look at the present state of affairs in the light of a different state of affairs, which is not now, but which is desirable, in order to be motivated to action. A worker suffers without considering his suffering and without confering value upon it, because he does not envisage a different state of affairs where his suffering would not exist; being immersed in the "historical situation," he does not conceive of the failures of the present state of affairs, of the lacks in the present political set up or economic situation; his suffering at present is not a suffering to him; it is not intolerable to him. The moment he forms the project of changing the situation it will appear intolerable to him.

Sartre draws two consequences from the foregoing account: (1)No factual state whatever it may be is capable by itself of motivating any act whatsoever; (2) no factual state can determine consciousness to apprehend it as a **lack.** [24]

Let us now consider the traditional view of cause and motive which is not acceptable to Sartre. Generally by 'cause' is meant the **reason** for the act; that is, the ensemble of rational considerations which justify it.It is an objective appreciation of a situation. For example, when we consiaer or list the **causes** for the declaration of war, we say that the occasion is propitious, that the country to be attacked is disorganised because of internal troubles, etc. Sartre contends that the objective appreciation can be made only in the light of a presupposed **end** and within the limits of a project of the for-itself towards this end. 'Cause' signifies"the objective apprehension of a determined situation, as this situation is revealed in the light of a certain end as being able to serve as the means for attaining this end."[25] The motive is generally taken to be a subjective fact. It is the "ensemble of the desires, emotions, and passions" which urge a person to accomplish a certain act. Usually we take them into consideration as a last resort when the causes are not sufficient to explain a certain act under consideration. When explanation in terms of causes does not throw light on what an agent does, we resort to explanation in terms of motives. Why did Constantine becomes a convert to Christianity ? "Since it is established that Constantine had everything to lose and apparently nothing to gain by embracing Christianity, there is only one conclusion possible—that he yielded to a sudden impulse, pathological or divine as you prefer."[26] Let us consider another example. When a person joins the Socialist party, there are causes and motives which are at work. Among the causes, we could mention his belief that this party serves the interests of humanity, that it will become the dominant party in the future, etc. At the same time, there are also motives like a feeling of pity for the oppressed classes, etc., for his joining the party. In cases of this type where both motives and causes are at work, how are we to determine the part played by each of them ? There is no answer to this

24. BN,pp. 435-36
25. BN,p. 446
26. BN,p. 446

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question in the traditional theory. This difficulty which is the greatest of those raised by the current distinction between causes and motives has never been resolved; few people indeed have so much as caught a glimpse of it.[27]

Sartre contends that the approach to 'cause' must be from the point of view of the for-itself or consciousnes. 'Cause'no doubt is the objective appreciation of a situation; but it is the state of contemporary things as it is revealed to a consciousness. The state of affairs can be revealed only to a consciousness since the for-itself is the being by which **there is** a world; it can be revealed only to a for-itself which chooses itself in this or that particualr way. The situatiom gets significance only when it is examined in the light of the projected end of the for-itself; human reality discovers the instrumental implications of instrumental-things only because it projects itself in this or that way. "In a word the world gives counsel only if one questions it, and one can question it **only** for a well-determined end."[28]

There is , according to Sartre, a close correlation between cause and motive. Something becomes a cause only because of consciousness. It is the consciousness which carves out the cause in the ensemble of the world, in the light of the projected end. The consciousness which itself toward its possible hangs on to it in a particular manner; this peculiar manner of holding to its possible by consciousness is called motive. By themselves, both motives and causes are, according to Sartre, without any force. The cause by itself cannot determine an action; for it appears only in and through the project of an action. So also is it the case with regard to motive. The motive is transcendent; like my past, it is separated from me by a nothingness. So it can act only if it is recovered; in itself it is without force. It is the for-itself which confers value and significance on both motives and causes. Sartre sums up his position as follows: "The meaning held for me by this desire, this fear, these objective considerations of the world when presently I project myself toward my future—this must be decided by me alone. I determine them precisely and only by the very act by which I project myself toward my ends.....Past motives, past causes, present motives,present causes, future ends, all are organised in an indissoluble unity by the very upsurge of a freedom which is beyond causes,motives and ends."[29]

We have seen why Sartre is dissatisfied with the traditional analysis of cause and motive. Let us now consider Sartre's reaction agaist the distinction that is generally made between voluntary act and passionate act, a contrast that is carried over from the contrast between cause and and motive. According to Sartre, a voluntary or willed act from the Cartesian point of view is free whereas a passionate act,an act motivated by passions, desires, etc., is not free. This position is not acceptable to

27. BN. p. 447
28. BN, p. 448
29. BN, p. 450

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Sartre. To him, both voluntary and passionate acts are modes of being, manifesting freedom; a passionate act is as much free as a voluntary act. It does not mean that, according to Sartre, there is no difference between a willed act and a passionate act. There is difference, but it is not the difference between a free act and its opposite. Let us elucidate Sartre's position by means of an exapmple. In a given situation I can react either in terms of passions, emotions or in terms of a rational appraisal or consideration of the situation. If I am threatened, I can run away at top speed because of my fear of dying. Here is a reaction in terms of passion; and this act of mine has to be understood in terms of the end which is posited here, viz., the value of life. Another person in the same situation may choose to stand firm at his post even if resistance first appears more dangerous than flight. Here also the same end is posited as in the case of emotional reaction. The difference between the two lies in the choice of means adopted and the degree of feflection, and not in the end which is posited. There is only the difference of subjective attitude in relation to a transcendent end; and so it is wrong to say that the one who flees is "passionate", reserving the term "voluntary" for the man who resists.[30]

Emotion is a reply adapted to the situation; it is a type of conduct, like voluntary, rational conduct. In fear, let us say, a person faints and loses his consciousness. Fainting, according to Sartre, aims at suppressing the danger by suppressing the consciousness of danger. "There is an **intention** of losing consciousness in order to do away with the formidable world in which consciousness is engaged and which comes into being through consciousness." A person in the same situation may consider it scientifically and organise a system of means with a view to resolving the problem. But what will make me decide to adopt the one or the other type of raction ? Sartre says that it is the for-itself or human reality which chooses the one or the other way of reacting to the end. "It is responsible for either one, for the for-itself can be only if it has **chosen** itself. Therefore the for-itself appears as the free foundation of its emotions as of its volitions. My fear is free and manifest my freedom; I have put all my freedom into fear, and I have chosen myself as fearful in this or that circumstance. Under other circumstances I shall exist as deliberate and courageous, and I shall have put all my freedom into my courage. In relation to freedom there is no privileged psychic phenomenon. All my 'modes of being' manifest freedom equally, since they are all ways of being my own nothingness."[31]

V

If what an agent does can be understood neither in terms of the past nor in terms of the state of the world, does it mean that it can be anything whatsoever or that it is unforeseeable ? An individual chooses to do a certain thing; and his choice is said to be free if it is such that it

30. BN, p. 444
31. BN, p. 445

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could have been other than what it is. If freedom entails freedom of choice to do this or that, does it follow that what an individual does is purely arbitray ? Sartre rejects determinism;at the same time he maintains that no act is by chance and that nothing takes place in an arbitrary way. Sartre removes the arbitrary character of every act by connecting it with what he calls the **fundamental** or **original project** of the individual. Every act that an individual does, the choice he makes, the way in which he reacts to a given situation is determined by the fundamental choice or the original project of the individual. There is nothing mysterious about this original or ultimate possibility which gives meaning to the particular action. My original choice is the choice of myself in the world, my being-in-the-world. To quote Sartre: "Our being is precisely our original choice; the original choice which gives meaning to the particular action is not distinct from my being; it is a choice of myself in the world, and by the same token it is a discovery of the world."[32] Further, the fundamental choice is not static; it is subject to modification. Why I do a certain thing can be explained and understood only in terms of my original project; given my original project, I do A and not B. Instead of A, I could have done B, but only if there is a modification of my initial project. To Sartre the important question is not whether I could not have done otherwise, whether I could have done B instead of A, but whether I could have done otherwise without perceptibly modifying the organic totality of the projects which I am.[33] So every act has to be interpreted in terms of an original project of which it forms an integral part. The act cannot be modified without a modification of the original project. It is this original choice which creates all causes and all motives which guide us in our actions; it is this project which arranges the world with its meaning, its instrumental-complexes, and its coefficient of adversity.[34]

While every act can be explained in terms of the original project, no interpretation of this initial project can be attempted, for it constitutes the original relation of the for-itself in the world, which is the ultimate limit in the Sartrian phenomenological analysis. "This original relation is nothing other than the for-itself's being-in-the-world in as much as this being-in-the-world is a choice.....No interpretation of this can be attempted, fot it would implicitly suppose the being-in-the-world of the for-itself just as all the demonstrations attempted by Euclid's Postulate implicitly suppose the adoption of this postulate."[35]

To sum up: (1) No act is by chance; every act has to be explained in terms of the original project. (2) The original project is not static; it admits of change. (3) While every act can be explained in terms of the original project, the original project itself cannot be explained.

32. BN, p. 462
33. BN, p. 454
34. BN, p. 465
35. BN, p. 457

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VI

Sartre's theory of responsibility is the culmination of his concept of freedom. Being condemned to freedom, man carries the weight of the whole world on his shoulders. He is responsible for the world and for himself as a way of being. The first move of existentialism, says Sartre, "is to make every man aware of what he is and to make the full responsibility of his existence rest on him. And when we say that a man is responsible for himself, we do not only mean that he is responsible for his own individuality, but that he is responsible for all men."[36] Whatever happens happens through me and is mine; there is no non-human situation; I carry the entire responsibility for the terrible situations of war, the worst tortures, etc.[37]

Sartre maintains that the peculiar character of human reality is that it is without excuse. There are no accidents in a life. Whatever bursts forth and involves me in it does not come from the outside. Take the case of war in which I am enlisted. Sartre says that this war is my war. I could have got out of it by suicide or by desertion. Instead of getting out of it, I have chosen it. This choosing to be in war may be due to inertia, cowardice in the face of public opinion. etc. Anyway you look at it, it is a matter of choice. Sartre rules out the idea of my being an innocent victim or a simple accomplice. "For it depended on me that for me and by me this war should not extst, and I have decided that it does exist. There was no compulsion here, for the compulsion could have got no hold on freedom. I did not have any excuse;...the peculiar character of human reality is that it is without excuse.[33]

It is clear from what has been said above that the responsibility which Sartre ascribes to man is unique. Sartre does not follow the conventional way in holding man responsible for what he does. He does not fix responsibility on man in terms of the presence of **premeditation** in what he does. This possibility does not arise for him, for both premeditated and emotional (or impulsive) acts are modes of being, manifesting freedom. He does not argue that a person is responsible for his action unless it is the result of **unconscious forces** of which he knows nothing. Nor does he say that a person is responsible for his act unless it is **compelled.** Aristotle, for example, argued that a person is responsible for his act except for reasons of compulsion (or ignorance). For Sartre there is no such thing as compulsion. Nor does he fix responsibility on man for what he does in terms of **efficacy of reason in changing his behaviour.**[39] The unique responsibility of man arises because of the unique freedom to which he is condemned.

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36. EXISTENTIALISM AND HUMAN EMOTIONS, p. 16.
37. BN, p. 554.
38. BN, pp. 554-55.
39. John Hospers, "What means this freedom?", DETERMINISM AND FREEDOM, pp. 127-131.

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MAGIC SQUARES

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THEIR CONSTRUCTIONS AND USES

NAND LAL BHARADWAJ

No authentic history of these wonderful magic figures is available. I say magic figures, because, besides magic squares, there are magic triangles, magic circles, magic balls, and magic cylinders to amuse us. The only sources of our knowledge of these magic squares are records of stray cases kept concealed by some very old Pandit families and wandering Hindu Monks, and inscriptions or stones in some old deserted ruins of Hindu temples and famous book called *Lilāvati* written after the Symbol by a woman mathematician of the same name. Legends ascribe them to Gorakh Nath an ancient Hindu Yogi of great merit who invented these magic squares and many other *Gorakh Dhandās*—Works of Gorakh which included, magic squares, magic triangles and many kinds of puzzles such as wire puzzles, cane puzzles, rope puzzles and a very intricate system of wonderful knots to engage and keep under control the ever increasing number of unruly disciples. The methods of construction of these magic squares were unknown to them or if known were kept scrupulously concealed.

Definition Of Magic Square : We have made a mere mention of magic squares above, but we have not told you what they are. A magic square in the ordinary sense of the term is a square having n^2 of houses —n being equal to the number of houses in a row—filled with a series of numbers in such a way that the sum of numbers in every row, column and diagonal is always the same. i.e. magic. It will do for the present. A complete scientific definition will follow some where in the body of the article.

Terms Used : Now let us proceed to the practical side of our work —the construction of magic squares. Before we try to do so we shall have to learn some very important terms and understand their signifiance without which we shall not be able to follow the intricate processes of making the magic squares.

These terms are connected with——

1. Numbers.
2. General classification of magic squares
3. Diagrams-figures
4. Aids.

(I) On Numbers

Without putting undue strain on the minds of my readers by introducing mathematical progressions, their dry formulae and boring technicalities connected with them, I shall try to put in a simple and homely

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language the relevant portions of the science of numbers before those who are interested in the study of the subject of this article.

Special Series Of Numbers : Now let us study the special series of numbers given below (a)

(1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
(2)	1		3		5		7		9		11		13		15		17	
(3)		2		4		6		8		10		12		14		16		18
(4)		2				6				10				14		16		18
(5)				4				8				12				16		

We can place 0 in the first place of a series if the common difference allows it. Thus—

We can plaee 0 in the first place of the series 1. 2. 3. 4.....and can place no 0 in the first of the series 1. 3. 5. 7.....because in the first case, the first number i.e. minus 1 the common is equal to zero, while in the second case the first number i.e. 1 minus 2 the common difference, is not zero.

(b) **Series Of Groups :** We can divide any series into groups of convenient size, terms having equal common difference through out, and groups in themselves must have equal common difference, differing or not differing from the common difference of terms.

Thus for example— 1. 2. 3. 4., 7. 8 9. 10., 13. 14. 15. 16. Here groups have a common difference of 3. while the terms have a common difference of 1.

(c)**Series Of Magic Squares:** In place of numbers or groups, we can make a series of Magic Squares. These will be dealt with later.

(d) **A Chain Of Series :** A series can be arranged in a chain. Thus—

1	2	3	4	& see how it	1	2	3 5
8	7	6	5	differs from	5	6	7 8
From 9	10	11	12		9	10	11 12

(e) From the above from (a) to (d) we can make any number of series by changing the common difference.

(3) Numbers And Terms : An example will explain the difference between a number and a term in a series. In the series 1 3 5 7 9 5 is a number, but it is the third term of the series. Its position in the series is third.

Increasing & Decreasing Order of Numbers in A Series.

Numbers in increasing order—1 2 3 4 5 6 7 8 9.

Numbers in decreasing order—9 8 7 6 5 4 3 2 1.

Any one of the above can be used in a Magic Square.

Complementary Number & Complementary Position Of Numbers

In the series 1 2 3 4 5 6 7 8. the complementary numbers are— 1 8.2.7, 3 6, 4 5 The totals of pairs of complementary number is always equal.

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The complementry position of the above series is 8 2 6 4 5 3 7 1. Note how they are placed. In the construction of magic squares we use either.

Mean of a series : Mean of a series having odd number of terms can be found in the ordinary way :

The mean of the series 1 2 3 4 5. is equal to

Total of numbers =15

Number of terms =5

Mean of the series 15÷5=3.

Note : All the series shown above, all the series divided into groups, all the magic square or any part of them, chain of series can be put in the place of numbers in making magic squares.

Conventional Ordinary or Natural Order of Series : The series no. 1 above is variously called by the name of ordinary, conventional or natural series or order. But in the language of magic squares all series are natural whatever their common differences may be. We, therefore, would like to call it Parental Series No. 1. Other series are derived 2 3 4 5. [Parental Series Derived]

Proper or Legitimate Series : Series no. 2,4, & 5 are called legitimate or proper because they are legitimately or properly derived from 1. Add these & you get series no. 1,

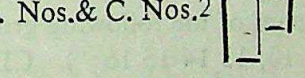
Write all these series in the ordinary way C,D, in each series, to be left blank.

Series	(2)	1		3		5		7		9		11		13		15	
,,	(4)		2				6				10				14		
,,	(5)				4				8				12				16
	(1)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Series no. 2 is further devided into—

1. Prime nos, 1, 3, 5, 7, 11 etc.
2. Composite nos. 9, 15, 21, 25, 27.

Measure $1\frac{1}{8}$ is used for both P. Nos.& C. Nos.



Measure $2\frac{1}{2}$  for P. nos, only.

(4) Note the following results :—

1. Series No. 2+3=1
2. Series No. 1—2=3
3. Series No. 1—3=2
4. Series No. 4+5=3
5. Series No. 3—4=5
6. Series No. 3--5=4
7. Series No. 2+4+5=1

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The Sum of A Series

Now the question is—How to find the sum of a series we here give a general formula with the help of which we shall be able to find the sum of any series— Series of numbers, series containing groups, squares etc:, The more elaborate study of these formulas will be reserved for a future article:

Abbreviations—

l =last term of the series
f =first term of the series
t =no. of terms in a series
h =number of houses in a row
s =sum of the series

General Formula

$$S = \frac{l+f}{2} \times t$$

$$\text{Sum of a Row} = \frac{l+f}{2} \times t \div h$$

Series of Numbers

Find the sum of the series above.

(1) 1 2 3.....9 $= \frac{l+f}{2} \times t = \frac{9+1}{2} \times 9 = 45.$

(2) 1 3 5 7 9 11 $= \frac{l+f}{2} \times t = \frac{11+1}{2} \times 6 = 36.$

(3) 2 6 10 14 18 $= \frac{l+f}{2} \times t = \frac{18+2}{2} \times 5 = 50.$

(4) 2 4 6 8 10 12 $= \frac{l+f}{2} \times t = \frac{12+2}{2} 6 \times = 42$

(5) 4 8 10 16 20 $= \frac{l+f}{2} \times t = \frac{20+4}{2} \times 5 = 60.$

Series of Groups

Find the sum of the following group series.

1 2 3 4, 7 8 9 10, 13 14 15 16) CD=terms 1.
) =groups 3.

$$\frac{l+f}{2} \times t = \frac{16+1}{2} \times 12 = 102.$$

(5) **Series of Magic Squares or part of Magic Squares.**

These are reserved for some future articles.

The same formula is applicable here also.

(2) **General Classification :** General classification of magic squares is based on proper or legitimate series numbers 2. 4 & 5 series above. As has been shown above, the legitimate series are derived from the parental series and when we add them together they merge into the same parental series. They do not overlap. They form the shortest number of series all the terms of which are found in the parental series. And

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again all the terms of the parental series are found in the three legitimate series.

(1) Now let us take the odd series.....1. 3. 5. 7. 9. are all abstract numbers if we add the main house or houses as the case may be. We have concrete or applicate numbers C. 9. One house, three houses 5 houses. If we use them as adjective of the word square, we will have 3 house square, 5 house square, or square of 3 houses, a square of 5 houses. For the sake of convenience let us call them a square of 3, a square of 5. The series being odd, the magic squares are called "Odd Magic Squares".

(2) Now let us take the "Doubly Even Series" Here in this the series is doubly even. The magic squares, therefore are called Magic square of 4, 8, 12 etc. We call them "Doubly even Magic squares" where every number is divisible by 4, a doubly even number 2X2= 4.

(3) We now take singly even series. Here the series is singly even. i. e. divisible by 2 and not by 4. The magic squares, therefore, are called the Magic squares of 6 10, 14, 18. We call them "Singly even Magic squares."

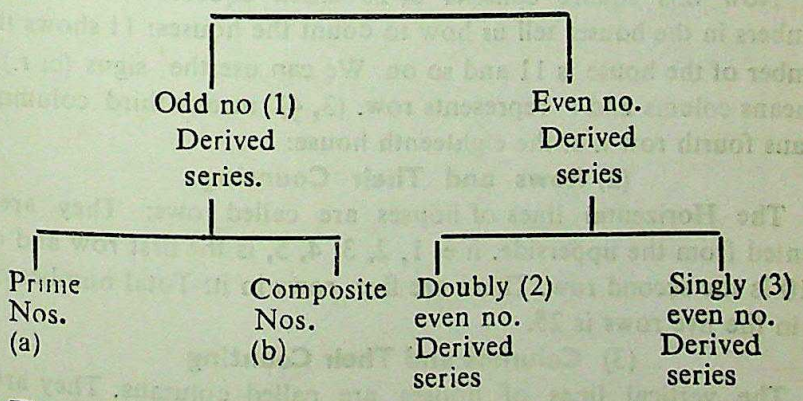
Thus we come to three kinds of magic squares.

1. Odd Magic Squares. They have odd number of houses in a row e. g. Magic Squares of 3, 5, 7, 9 & so on.

2. Double even Magic Squares. They have doubly even number of houses in a row eg. 4, 8, 12, 16. They are all divisible by 4=2 X 2 hence doubly even.

3. Singly Even Magic Squares. They have singly even number of houses in a row e. g. 6, 10, 14, 18, each divisible by 2 and not by 4. Hence singly even.

Chart of Classification



Note : Three different sets of rules govern the construction of these three kinds of Magic squares. Hence the importace of this classification.

There are different sets of Diagrams, Aids, rules etc, for different kinds of Magic Squares. They will be dealt with in their proper places.

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On Diagrams Connected with Odd M. Squares

On Diagrams connected with odd magic squares. We shall first deal with Diagrams aids etc. connected with the first kind of Magic squares. The odd magic squares diagrams are very useful in simplifying and explaining difficult and complicated matters connected with these magic squares. We shall make free use of them.

Stop Number & Start Number

Fig 1 represents a square of 5 filled with the parental series. A series when filled in a square is divided into as many groups as there are houses in a row. The last no. of each group is the stop number and the first number of each group is the start number.

Fig. 1

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

In fig 1, 5, 10, 15, 20, 25, are the stop numers and 1, 6, 11, 16, 21 are start numbers. A start number begins a circuit and the stop number ends a circuit in a magic square just as they do in the case of a row. There is a definite relation between their positions in a magic square. Sometimes, as we shall see, in certain kinds of magic squares, the numbers shift their houses, but the order of counting does not change, and the stop and start numbers still maintain their character.

(1) Houses and Their Counting

Now this square consists of 25 small squares called houses. The numbers in the houses tell us how to count the houses. 11 shows that the number of the house is 11 and so on. We can use the signs (c. r.) where c means colums and r represents row. (3, 4) means third column and 4 means fourth row i. e. the eighteenth house.

(2) Rows and Their Counting

The Horizental lines of houses are called rows. They are to be counted from the upperside. i. e. 1, 2, 3, 4, 5, is the first row and 6, 7, 8, 9, 10 is the second row. There are five rows in it. Total number of houses in the five rows is 25.

(3) Columns and Their Counting

The vertical lines of houses are called columns. They are to be counted from the left hand side. 1, 6, 11, 16, 21, is the first column and 3, 7, 12, 17, 22 is the second column. There are five columns in it. Total number of houses in the five columns is 25.

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(4) **Medilaterals** : They are two. Horizontal Medilateral and Vertical Medilateral. They are middle row and middle columns crossing each other at the centre and making the sign of plus. They have nine houses.

(a) 11. 12. 13. 14. 15. (b) 3. 8. 13. 18. 23. The centre is common to both. They are horizontal and vertical Medilateral respectively.

(5) **Medilateral Squares** : Medilaterals have four squares in the four corners each composed of four houses. They are called Medilateral squares.

(6) **Diagonals** : Oblique lines of houses are called Diagonals. In the figure we see that there are two diagonals which have equal number of houses i.e. 5. The number of houses in others is less. We therefore divide diagonals into two classes (a) Complete diagonals. (b) Broken diagonals.

Fig, 2

1·2	4·5
6·7	9·10
16·17	19·20
21·22	24·25

(7) **Complete Diagonals** (a). Complete diagonals—
There are two complete Diagonals.
1, Right Diagonal.
2 Left Diagonal.

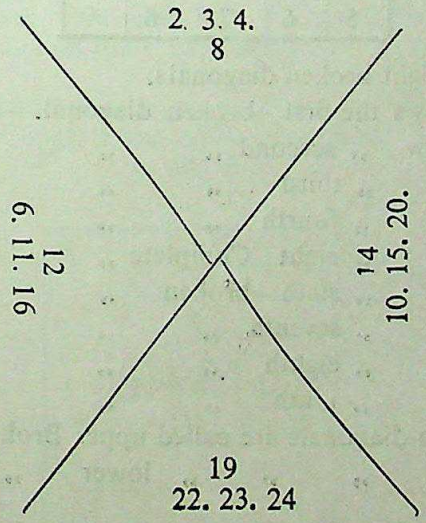
(8) **Rignt Diagonal**(1)Right Diagonal—It begin from the right hand upper corner and ends in the left hand lower corner 5. 9. 13. 17. 21.

(2) **Left Diagonal** : It begins from the left hand upper corner and ends in the right hand lower corner, 1, 7, 13, 19, 25.

They both cross each other at the centre and make the sign of X multiplication.They have nine houses. They have four Stupas or Pagodas on the sides, each composed of four houses.

Medilaterals and Diagonals both cross at the centre and make the sign of a star ✕.

Houses of Rows and columns meet at sides and Houses of Diagonals meet at corners.



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(9) **Incomplete or Broken Diagonals** (b) Each complete Diagonal has eight incomplete or broken diagonals four on each side of it. They have smaller number of houses than a complete diagonal.

Right Broken Diagonals & Left Broken Diagonals : They are thus divided into two classes——

1. Right Broken Diagonals & 2 Left Broken Diagonals. 1. Right Broken Diagonals lie parallel to the right complete Diagonal.

2. Left Broken Diagonals lie paralled to the left complete Diagonal.

Upper and Lower Part of A Square & Upper Broken Diagonals and Lower Broken Diagonals: It must be remembered in this connection that a complete Diagonal divides a square into two parts called the Upper part of Square and the lower part of a square. Upper part lies on the upperside of a diagonal and the lower part lies on lower side of it. Each part contains four broken diagonals called upper broken diagonals and lower broken diagonals respectively,

Counting of Complete And Broken Diagonals : Complete and incomplete Diagonals may be counted from any one of the corners of the square. In any case a complete diagonal and broken diagonals on either side of it are to be counted together. This will make the total number of diagonals equal to the total numbers of rows or columns in the square and will prove that, in number, houses of rows, columns and diagonals are equals.

Let us begin counting from the left hand upper corner.

Fig. 4

1	2	3	4	5
2	3	4	5	9
3	4	5	6	7
4	5	6	7	8
5	6	7	8	9

(9) In fig. 4—Right broken diagonals,

No. 1, Shows the first broken diagonal.
Nos, 2, Show ,, scecond ,, ,,
,, 3, ,, ,, third ,, ,,
,, 4, ,, ,, fourth ,, ,,
,, 5, ,, ,, eight Complete ,,
,, 6, ,, ,, sixth broken ,,
,, 7, ,, ,, seventh ,, ,,
,, 8, ,, ,, eighth ,, ,,
,, 9, ,, ,, ninth ,, ,,

1 to 4 Broken diagonals are called upper Broken Diagonals,
6 to 9 ,, ,, ,, ,, lower ,, ,,

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Complementary Broken Diagonals : Any two broken Diagonals are complementary to each other when their total no. of houses is equal to the number of houses in the complete diagonal.

False Complementary Broken Diagonals & True Complementary Broken Diagonals : Complementary Broken Diagonals are False when they lie on the same side of a complete Diagonal. They are true when they lie on the opposite sides of the same complete diagonal.

The sum total of numbers filled in a pair of False complementary broken diagonals is never equal to the sum total of numbers filled in a complete diagonal. But sometime the sum total of numbers filled in a pair of True complementary broken diagonals is equal to the sum total of the numbers filled in a complete diagonal. In such a case the resulting magic square is called The "Master Magic Square".

Example—Fig 4.

Pairs of Broken Diagonals.		No. of houses in each pair-5
Set (a) No. 1	Nos. 4	False
Nos. 2	,, 3	,,
,, 6	,, 9	,,
,, 7	,, 8	,,
Set (b) No. 1	Nos. 6	True
Nos. 2	,, 7	,,
,, 3	,, 8	,,
,, 4	No. 9	,,

They are all complementary broken diagonals, because the total number of houses in each pair is equal to the number of houses.

In a complete diagonal.

Complementary broken diagonals in "set b" are false because they lie on the same side of the complete diagonal.

Complementary broken diagonals in "set a" are true because they lie on the opposite sides of the same complete diagonal.

A pair of complementary broken diagonals is equal to one complete diagonal in number of houses.

Hence one complete diagonal plus four pairs of True complementary broken diagonals are equal to five complete diagonals.

Note : Count left diagonals in the same way.

False C, B, diagonals are not considered. They are of little value.

Houses : We will now deal with the names and positions of some very important houses and their relations to rows, columns and other houses.

In fig 5 the central house-centre is shown by 1,The Medilaterals and the diagonals pass through it and make a combined sign of + and X *a star.

Fig 5.

4		3		5
		2		
3	2	1	2	3
		2		
7		3		6

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It is thus the central house of—

1 The whole square.
2 The middle row.
3 The middle column.
4 The right diagonal.
5 The left diagonal.
6 The Horizontal Medilateral.
7 The verticle Medilateral.

(2) **The Four Corners** : A corner house is the meeting place of a row, a column and a diagonal. The corners are shown by 4, 5, 6, 7.

1 Pairs of opposite corners—4 and 6, 5 and 7.
2 Pairs of lateral or side corners 4 & 5, 5 & 6, 6 & 7, 7 & 4.

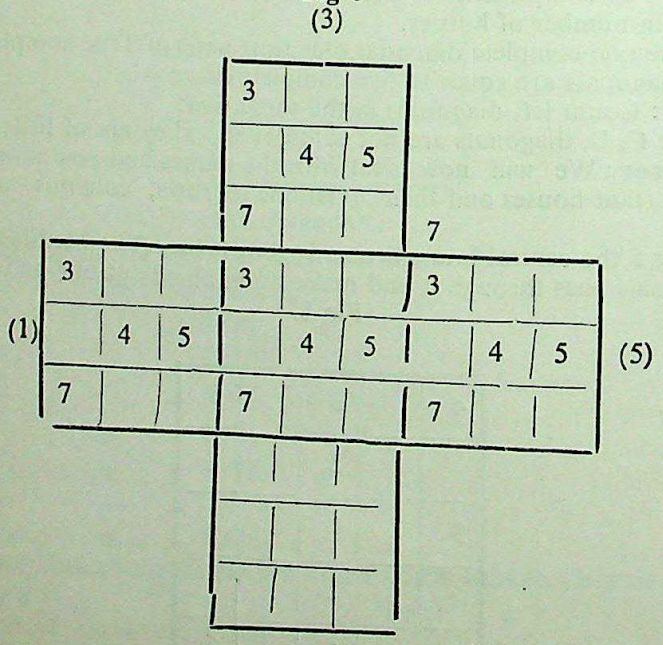
(3) **Four Far Houses :** They are the middle houses of outer rows and outer columns. They are shown by 3.

(4) **Four Near Houses** : They are in the middle row and in the middle cloumn just near the central house. They are shown by 2. Far and near houses lie in the medilaterals. In a square of 3 the far and the near houses coalesce,for the middle houses of outer rows and columns and the near houses have no separate existence. They have become one i.e. coalesced.

On Aids : Aids are various kinds of contrivances with the help of which we can construct many kinds of magic squares. Aids connected with odd magic squares are—

1 Directing squares.
2 Helping or Subsidiary Squares.
3 Measures of various kinds.
4 A circular Movement of 45.
5 Straight movements—Horizontal and verticle of rows and columns.
6. Trial

Fig 6



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Fig. 6 represents nine squares. There is the central square with thick sides. It is our would be magic square. These four directing squares with thin lines one on each side of the central square. They are called Lateral Directing Squares (L. D. S) There are four others with dotted lines one on each corner of the central square. They are called Gonal Directing squares (G. D. S.)

So we have got.....

1 One central square

2 Four Lateral Directing squares

(1) Left.....marked (1))
(2) Upper..... ,, (3)) All these Directing
(3) Right ..... ,, (5)) Square, (D. S) have the
(4) Lower..... ,, (7)) same Directions

3 Four Gonal Directing Squares) as the arrow shows.

(1) Left upper.....marked 2)
(2) Right ,, ... ,, 4)
(3) Right lower..... ,, 6)
(4) Left lower..... ,, 8)

The Due House Number : The Due House of a number in Magic Squares is the house which a number is to occupy in the construction of a Magic Square under the rules. The Due number of a house in magic squares is the number which occupies a due house.

Corresponding Houses

We have already learnt how to count the houses of a square. If we place any one of the L. D. Squares on the central square without changing the direction of the former, it will cover the latter in all respects. Thus all the houses of the one will cover all the houses of the other in the order of counting. The houses covering and the houses covered are called corresponding houses of one another. Numbers in corresponding houses are corresponding numbers.

Thus the houses marked 3, 4, 5, 7, of the different Directing Squares and in houses 3, 4, 5, 7, of the central square are corresponding houses.

As for nos. in the gonal directing squares, they can go first to any one of the L. D. squares, adjoining them and then to the central T squares e. g. no. 7 can go first to the fifth L. D. S. and then to the central squares or can go first to the sixth L. D. S. and then to the central squares.

Functions of Directing Squares : The function of the directing squares is to find out the corresponding houses for number ousted into them. In the process of making magic squares.certain numbers,as we shall see later on,fall outside the magic square and into a directing square under the stress of one or the other aid, we atonce go to the corresponding houses of these ousted numbers and place them there in the right houses.

AIDS 2, 3, 4, 5, 6.

These aids will be treated in connection with the construction of magic squares concerned.

Now we will take these aids one by one, explain certain important facts connected with them and proceed to make odd magic squares under the rules governing them.

Aid 2 By The Method Of Helping Squares : Helping squares are two squares filled with different series according to certain rules and when they are added together they form a magic square. They are called

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parental square and derived square after the names of series of numbers with which they are filled. In the first helping square we fill the parental series upto as many terms as there is the number of houses in the row. In the second we fill the derived series upto as many terms as there is the number of houses in the row, with as much common difference as there is the number of houses in the row.

In (1)—In the first helping square.....

(a) in a square of 3.

We fill 1, 2, 3, the number of houses in a row being 3.

(b) In a square of 5.

We fill 1, 2, 3, 4, 5, the number of the house in a row being 5.

(2) In the second helping square.....

(a) in a square of 3.

We fill 0,3,6, three terms common difference being 3.

(b) in a square of 5.

We fill 0, 5, 10, 15, 20 five terms, common difference being 5.

There are two methods of filling the numbers. We will try the first method only.

First Method The Diagonal Filling. Example I :

Parental Helping Square of 3	Derived Helping Square of 3	Magic Square of 3
Parental series	Derived series	
1, 2, 3,	0, 3, 6,	
Mean—2	Mean—3	
Common Difference-1	Common Difference-3	

(a) **Fig. 7** (b)

2	3	1	6	0	3	8	3	4
1	2	3	+ 0	3	6	= 1	5	9
3	1	2	3	6	0	6	7	2

Rules of filling.

(a) 1 Fill the mean in any Diagonal (say left) i. e. 2 filled in left Diagonal.

2 Fill the broken diagonals with similar numbers in any order.

(b) 1 Fill the mean in the opposite diagonal i. e. 3 filled in the opposite right diagonal.

2 Fill the broken diagonals with similar numbers in any order.

(c) 1 Add corresponding numbers of 1st. and 2nd. helping square.

2 Place the total of a& b in the corresponding houses of the magic Sq.

Fig. 8

3	5	4	2	1	0	5	15	20	10
1	3	5	4	2	5	15	20	10	0
2	1	3	5	4	+ 15	20	10	0	5
4	2	1	3	5	20	10	0	5	15
5	4	2	1	3	10	0	5	15	20

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Example—2

Parental helping Sq. of 5 parental series 1.2, 3, 4, 5.Mean—3 | Derived helping Sq. of 5 derived series 0, 5,10, 15, 20. Mean—10 | Magic Squares of 5.

Fig. 8

(c)

3	10	19	22	11
6	18	25	14	2
17	21	13	5	9
24	12	1	8	20
15	4	7	16	23

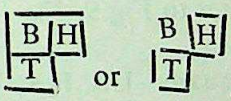
Rules of filling etc., same as in Example 1 above.

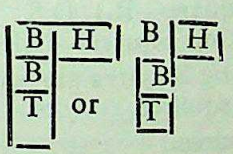
We can fill the broken diagonal with different similar numbers from the above and get many different magic squares. We can fill the mean number in the opposite diagonals of both the squares and go on repeating the same process of filling different broken diagonals with different sets of similar numbers and get different magic squares.

All bigger magic squares of odd series can be made in the same way.

Aid 3 Measures : Space does not allow me to enter into the scientific study of measures, their classification, derivation and various other items connected with them. I will, therefore, select two of them to prepare magic squares i.e.The Lowest measure and the Master measure.

Parts of A Measure: A measure has three parts-Body, Head & Tail.

Lowest Measure  or

Master Measure  or

1 Where H represents Head.
2 T represents Tail.
3 Remaining portion B shown or not shown represents body of the measure.

Size And Use of Measures And Their Move : The size of the smaller measure called the Lowest measure is $1\frac{1}{2}$ houses, and the size of of the bigger measure called the Master measure is $2\frac{1}{2}$. The Lowest measure (L. M.) is used for the construction of Far House Magic Squares (F. H. M. S) Fig. 9, and Near House Magic Squares (N. H. M. S.) Fig. 10, and composite magic squares. The Master Measure (M M.) is used for constructing Master magic square (M. M. S.) i.e Magic squares of Prime numbers. A number moves $1\frac{1}{2}$ houses when we use the Lowest measure. It moves $2\frac{1}{2}$ houses when we use the Master measure.

Application of Measures: When we speak of application of a measure, it is not necessary to have separate paper or cardboard measure.The houses of the magic square themeselves will serve the purpose. It is better to perform all these processes mentally from the outset.A little practice will assure success.

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Fig 9 Far House no. 1

	18	25	2	9	16
17	24	1	8	15	17
23	5	7	14	16	23
4	6	13	20	22	4
10	12	19	21	3	10
11	18	25	2	9	

Ftg 10 Near House no. 2

11	24	7	20	3	16
23	6	19	2	15	23
10	18	1	14	22	10
17	5	13	21	9	17
4	12	25	8	16	4
11	24	7	20	3	

Fig 11 Any House no 3.

	2	15	23	11	19
25			4	12	25
1	14	22	10	18	6
7	20	3	11	24	7
13	21	9	17	5	13
19	2	15	23	6	
25	8	16	4	12	25

8

Rules for application of Measures to Fig 9, Fig 10 & Fig 11.

Directing Squares Use

1. Upper Lateral Directing Square—U.L.D.S.
2. Right Lateral Directing Square—R.L D.S.
3. Upper Right Gonal Directing Square—U.R.G.D.S.

Only parts of the above Directing Squares are shown to economise space. Thick sides show the central square.

Rules for Application Of Measures.

(1) Fill the first start number 1.

(a) In the Far House in No. 1 M Sq.

(b) In the Near House in No. 2 M.Sq.

and (c) In the first House in No. 3 M.Sq. —Go on comparing please.

(2) At this stage, we may place the Tail of our cardboard measure on 1 and proceed or we may take houses equal to the measures from the square itself and proceed. We take the measures.1, 2 & 3.

25 | 2	19 | 2	2
1	1	25
		1
1	2	3

for the above squares respectively.

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(3) All numbers ousted into the Directing Squares are to go to their corresponding Houses in the central square. Ousted Houses 18, 25, 2. 9 on the one hand & 17, 23, 4, 10 on the other hand, go to their corresponding Houses as shown in Fig.9.So is the case with other two M.Sq. 9 Nos. 10 & 11.

(4) All new starts are to be made from the numbers in the Central Square & not from the directing square, Otherwise there will no end to directing squares.

(5) If the due house or the corresponding house of a number is already filled, new circuit is to begin. The start number is then placed below the lower number in the case of Far House Magic Square and Master Magic Square, and in the alternate house above the lower number in the case of Near House Magic Square.

The due house 6. in Figs. 9 and 10 is already occupied by 1. and the corresponding house 6 in Fig 11 is also occupied by 1, we therefore begin a new circuit by placing 6 the start number below 5 in Figures 9 and 11 In fig 10 however, 6 is placed in the alternate house above 5. In the same way the start numbers 11, 16, 21 are also placed below the stop numbers 10, 15. 20 in Figs. 9 and 11, but in the case Fig. 10, the start numbers 11, 16 and 21 are placed in the alternate house above the stop numbers 10, 15 and 20.

We can make all smaller and bigger magic squares of odd series in the same way as in fig.9&10 with the help $1\frac{1}{2}$ measure were and all M.Sqs. of Prime nos. as in fig. 11 with the help of $2\frac{1}{2}$ n .

Method of Circular Movement: We have already studied the construction of magic squares with the aid of Helping Squares. We have also studied their construction with help of measures.In the former there were no oustings at all, while in the latter there were individual oustings of numbers into the directing squares. Now we are going to study a method of making magic squares which teaches us how to make collective oustings.

This method consists of making a circular movement of numbers or the diagram to the left or to the right till an angle of 45° is made. Numbers and the diagram consists of a parental series filled in an odd square. Any of the above movement divides the series into Diagonals and so makes it easy to construct a Magic Square. A series can be written in a square in eight different ways. We take the first—— and construct magic squares in three different ways ——M. Sq of 3—Directing Squares used 4: D.S.

1	2	3
4	5	6
7	8	9

(1) By turning the figure.....Card board method.

Fig 12

(a)

1	2	3
4	5	6
7	8	9

(b)

3

2		6
	5	
4		8

1 9 7

(c)

2	7	6
9	5	1
4	3	8

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Fig 13 (2) By turning the numbers —Cardboard method.

(a)

1	2	3
4	5	6
7	8	9

(b)

3

2		6
	5	
4		8

1 9

7

(c)

2	7	6
9	5	1
4	3	8

Fig 14. (3) By dividing the series into Diagonals—Book or paper Method.

Fig 14 (a)

3

2		6
	5	
4		8

1 9

7

(b)

2	7	6
9	5	1
4	3	8

(c)

4	9	2
3	5	7
8	1	6

Putting the ousted numbers 1, 3, 9, 7 in their corresponding houses in all the three cases we get the magic squares (c). The method illustrated in Fig 14 is very useful we can show this on paper.

Higher Magic Squares : In the construction of magic Square of *5* or bigger ones we can proceed in the same way.

Fig. 15 (a)

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

Ousted Nos.

1 6 2

5 4 10

25 20 34

21 16 22

(c)

23	6	19	2	15
10	18	1	14	22
17	5	13	21	9
4	12	25	8	16
11	24	7	20	3

These ousted numbers go to their corresponding Houses .They are in the central square and the M.Sq is ready.

Note carefully (a) 1 is placed in the near house.

(b) 6. 11, 16, 21 the start numbers are placed in the alternate houses aboye the stop numbers.

It is, therefore a clear case of Near house Magic Square. See Fig.

So we have come to know two methods of making Near House Magic Squares.

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(b)

				1				
			6		2			
		11	24	7	20	3		
	16	4	12	25	8	16	4	
21		17	5	13	21	9		5
	22	10	18	1	14	22	10	
		23	6	19	2	15		
			24		20			
				25				

Construction of Magic Squares By Straight Movements : Now we will construct magic squares with the help of straight movements of numbers—horizontal movements of numbers in rows and vertical movements of numbers in columns. We will also make use of Directing Squares, namely, Left Lateral Directing Square (L.L.D.S.) and Upper Lateral Directing Square (U.L.D.S.).

Fig 16 (a)

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25

(b)

					1	2	3	4	5
				6	7	8	9	10	
			11	12	13	14	15		
		16	17	18	19	20			
	21	22	23	24	25				

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Collective Movements : In this case numbers of a row or column move collectively and not individually as in the case of magic squares made with the help of measures.

(a) Here parental series is arranged in a square of 5. It is a latent suqare of two dimensions.

(b) Here there is a collective movement of numbers in four of the rows. All numbers are arranged in Diagonals.

(c) Here ousted numbers in (b) are shown to have gone to their corresponding Houses.

(d) Here there is a collective movement of numbers in four of the columns.

(e) Here ousted numbers in (d) are shown to have gone to their correspondiug houses.

Remarks on (b) and (d).

In the 1st. row there is no ousting.
In the 2nd. ,, ,, is one ousting.
In the 3rd ,, ,, are two oustings.
In the 4th ,, ,. are three oustings.
In the 5th ,, ,, are four oustings.

(b) Increase in ousting in rows is at the rate of one 0,1, 2, 3, 4 is the series showing increase:

(d) Increase in ousting in ousting in columns is at the rate of two 0,2, 4,6,8 is the series showing increase.

c

1	2	3	4	5
7	8	9	10	6
13	14	15	11	12
19	20	16	17	18
25	21	22	23	24

e

1	14	22	10	18
7	20	3	11	24
13	21	9	17	5
19	2	15	23	6
25	8	16	4	12

d

0	2	4	6	8
		3		
		9		5
	2	15		6
	8	16	4	12
← 1	14	22	10	18
7	20		11	24
13	21		17	
19			23	
25				

See fig. 11—3

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In the case of individual ousting of numbers with the help of master measure the order of proceeding was—first Tail and Body, and then the position of the Head. But here in collective ousting of numbers with the help of straight movements the order is reversed. In collective Horizontal movements of numbers in rows to the left one house in excess of the one above itself, the position of the Head is first supplied to every number in all the rows. As head occupies one house.There is one ousting in excess of the one above it.

In collective vertical movement of numbers in columns to the upper-side two houses in excess of the one to the left of itself, the position of body and tail is next supplied to every number in all the columns.As body and tail occupy two houses in the measure, there are two oustings in excess of the one to the left of it. In fig. 16 (b) oustings are quite regular, but in (d) they appear to be otherwise. But as a matter of fact they are also quite regular. In the first column there is no ousting. In the second columns there are two oustings and in the third column there are four. In fourth column therefore should be 6 and in the fifth 8, but we have shown 1 and 3 respectively. The reason is that when all the numbers of a column are ousted, they are supposed to go back to the same places as their corresponding houses. So we oust 6—5 i.e. 1 in the fourth column and 8—5 i.e. 3 in the fifth column. cf. Fig 11—3 Fig 16—e They are alike—If we start from the Far House Fig 16 i.e. or from the centre, we can get the following Master Magic Squares.

Fig. 17 (a)

10	18	1	14	22
11	24	7	20	3
17	5	13	21	9
23	6	19	2	15
4	12	25	8	16

(b)

23	6	19	2	15
4	12	25	8	16
10	18	1	14	22
11	24	7	20	3
17	5	13	21	9

We can get these M.M. Squares by division and interchange also. All Master M. Sqs. of Prime Nos. can be had in the same way.

Fig.16(e)—Now we come to the beauties of Master Magic square the wonder of wonders.It is a magic square of four Dimensions and many Associated groups of different kinds.

Master Magic Squares are divisible. We can divide it into two parts and interchange them without spoiling its nature. Thus we get Master Magic Squares fig 17 by division and interchange. If we divide Last two rows and interchange, 1 will go to the centre in the place of 13. This is not possible in magic squares of other kinds. This magic square is magic in all possible minute details.

Patent Dimensions :

First Dimension—Rows	10, 18, 1. 14. 22=65.	
	11. 24. 7. 20. 3=65.	
	17. 5. 13. 21. 9=65.	
	23. 6. 19. 2. 15=65.	
	4. 12. 25. 8. 16=65.	
Second Dimension columns	10. 11. 17. 23. 4=65.	
	18. 24. 5. 6. 12=65.	

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1. 7. 13. 19. 25=65.
14. 20. 21. 2 8—65.
22. 3. 9. 15. 16=65.

Latent Dimensions

Third Dimension—Right Diagonals 10. 12. 19. 21. 3=65.
11. 18. 25. 2. 9=65.
17. 24. 1. 8. 15=65.
23. 5. 7. 14. 16=65.
4. 6. 13. 20. 22=65.

Fourth Dimension Left Diagonals 22. 8. 19. 5. 11=65.
14. 3. 25. 6. 17=65.
1. 20. 9, 23. 12=65.
18. 7. 21. 15. 4=65.
10. 24. 13. 2. 16=65.

Associated Groups.

I. Centre and Medilateral—

13. 1. 25. 17. 9=65
13. 7. 19. 5. 21=65.
13. 22. 10. 4. 16=65.
13. 14. 18. 12. 8=65.
13. 20. 24. 6. 2=65.
13. 3. 11. 23. 15=65.

II. Plus sign—— +

18. 24. 5. 11. 7=65.
24 5. 6. 17. 13=65.
5. 6. 12. 23. 19=65.
6. 12. 18. 4. 25=65.
12. 18. 24. 10. 1=65.

18
|
11—24—7
|
5

We get the last group by division and interchange. First column gives us these five groups. All the five columns will give us 25 groups. See Fig. 2,

III. Multiplication sign. X

10. 24. 13. 1. 17=65
11. 5. 19. 7. 23=65.
17. 6. 25. 13. 4=65.
23. 12. 1. 19. 10=65.
4. 18. 7. 25. 11=65.

10
|
17—24—1
|
13

Last two by division and interchange.
Here also we shall also get 25 groups.

IV. **T Shapes.**

There are one hundred T shapes. I give only five—

22. 14. 1. 20. 8=65.
14. 1. 18. 7. 25=65.
1. 18. 10. 24. 12=65.
18. 10. 22. 11. 4=65.
10. 22. 14. 3. 16=65.

22. 14. 1
20
x
x
8

If we proceed further in this way above will repeat. For one row, we have got five. For five rows we shall get 25. If we proceed from below and go upward we will get 25 more. So far we have dealt with rows. We can repeat the same process in connection with columns and get fifty more.

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V. Airplane Shapes—

22. 14. 16. 8. 5=65 14·22
14. 1. 8. 25. 17=65. ;
1. 18. 25. 12. 9=65. 5
18. 10. 12. 4. 21=65. .
10. 22. 16. 4. 13=65. 8·16

If we proceed further. The above will be repeated. In a very few cases there appears to be overlapping on paper we mentally and not on paper take a row or a column to the other side to complete the number 5

VI Kite Shapes—

22. 14. 30. 20. 6=65. 14 22
14. 1. 20. 7. 23=65. 20 3
1. 18. 7. 24. 15=65. x
18. 10. 24. 11. 2=65. 6
10. 22. 3. 11. 19=65.

Aid 6 By Trial.

Now we will consider a class of Magic Squares which can not be made with the help of any one of aids mentioned above. We can make them by Trial. We try all the possible combinations and by the process of elimination come to make a magic square. Such magic squares have borders around them. They are therefore called Bordered Magic Squares. Before trying to make them we have to learn a set of special terms——

In Fig 18—

(a) Opposite corners are 1-25, 3-23
(b) Side corners are 1-23, 23-25, 25-3, 3-1.
(c) Side portions—Portion of a row or a column between the side corners, 8.5.4 18. 21. 22.2.19. 20. 24.7 6.
(d) Opposite side portions—2,19,20 and 24 7.6, 18.21, 22 and 8. 5. 4.
(e) Opposite houses of side portions are— 20 & 6, 19 & 7, 2 & 24, 22 & 4 etc.

Fig 18

1	2	19	20	23
18				8
21				5
22				4
3	24	7	6	25

Necessary requistion of Borders are.—

1. Numbers in opposite corners are complementary 23+3=26, 1+25=26, 1+25=26.
2. Opposite houses of side portions are complementary 2+24=26, 19+7=26 etc.

Bordering A Number i. e. 5.

1, 3, 3, 4,
9, 8, 7, 6,

are to be placed round 5 in Fig. 19, 2, 8 & 4, 6 are to be chosen as corners & 1, 9 & 3, 7 as side portions. The Magic Square is valid. It fulfils all the requisitions.

Fig. 19

8	1	6
3	5	7
4	9	2

Fig. 20

1	6	3
8	5	2
7	4	9

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If we had filled it otherwise, it would not have been valid See fig. 20.

Bordering a .M. Sq. of 3.

If we border a magic square of 3, we will have a Magic Sq. of 5 with 25 terms.The series 1—25 will be divided into 3 parts 1—8,9—17,18—25.

Fig. 21

(c)

1	2	19	20	23
18	16	9	14	8
21	11	13	15	5
22	12	17	10	4
3	24	7	6	25

The middle part 9—17 is filled in the middle—a Magic square of 3. & Fig. 20.

1, 2, 3, 4, 5, 6, 7, 8 the first part and the last part 25,24,23,22,21, 20 19,18 are to be filled in the border.The first and the third part are written in complementary pairs with a total of 26 each pair.

How To Find The Total Of A Side Portion : If we choose 1&25 2&24, as opposite corners the magic square will be invalid. But if we choose 1 & 25, 3 & 23 as opposite corners the magic square will be valid. The sum of Numbers in a row or columns of M. Sq. of 5 is 65. 65-2 side corners gives us the total of a side portion. 65—(23+25)=the sum of Numbers of the side portion=17. From the complementary pairs find 3 numbers whose sum is 17.8.5.4,are such numbers. Fill them between corners 23 & 25 as shown in Fig.18 and their complments 18, 21, 23 in the opposite houses of the opposite side portion as shown in Fig. 18.

Again 65—(1+23)=is equal to the sum of numbers in the Upper side portion i.e. 41.Now from the remaining complementary numbers find three numbers whose sum is 41, 2, 20, 19 are the numbers whose sum is 41. Fill these numbers in the Upper side portion, and their complements 24, 6, 7 in the lower side portion as shown in Fig. 18.

The Border Fig 18 is ready. This border is to be put around the Magic Square 3 Fig. 21.

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THE KEY IS WITHIN YOU

VIDA REED STONE

TRUTH is easy of approach and realization, for it is the natura home of man; its air, the breath his eternal spirit craves; its food,his true sustenance. In the truth of the oneness and perfection of all life he can relax, and know that all moves and exists in the Balance of God.

To some this Truth may appear as a mystery, yet a small key will unlock its treasures. It appears difficult of attainment, yet obedience is its only requirement, obedience to the truth in the heart of man, the one perfect Law of Life.

Yes,there is a Key,for it was said,"Know the truth,and the truth shall make you free." The Truth of life is that there is but One Life, not you and I and he and they; but One, as the many, One only, ever and always.

To harm another is to harm oneself; to lift one is to lift all; to know the truth within is to know the truth for all beings; to obey the moral law is to be obedient to the currents of all life; to be harmonious within is to be in alignment with the laws of the universe; to lose your self-life is to find Eternal Life; to give is to receive; to love is to Be. When the soul grasps the truth of the Oneness of Life, vision is expanded to see all truth, and the Key of Life is found..

Seeing this Truth man becomes the embodiment of it, the "word made flesh," not to talk of it or about it, but Be It—the One Life in expression where he is. That which man is he imparts to his environment, as a rose scents the atmosphere it grows, and as the song of a lark fills the space it inhabits.

It is not the building of something which is separate and never can be the whole; but rather, in knowing that only as the personal self is lost in the whole, can it partake of the fullness of life. Your purpose, your reason for existence, your joy, your peace is in the freeing of God to full expression in this moment, in this place where you are.

There are no problems of peace, no difficulties to be solved at the Peace Table, no secret treaties to be arranged, each man and each nation seeking its own advantage. The only problem—if we name it this—is within the individual man; and the solution is also within him. It has always been there awaiting this day. The joy man long has sought will rise from within his heart. He will have discovered the truth; that joy and peace come by knowing that "thy neighbour is truly thy-self;" and that to seek his welfare is to increase his own and that of all men. This discovery shall make it impossible for him to return to his former limitations of thought and action.

Why stay in the little stream of thine own self-life ? Its shores are but barren islands; its waters harbor but life-less organisms. Enter the Ocean of Life; great ships and cargoes will be carried upon thy crest; thy deeps will nourish life in all degrees of growth; thy tides and billows embody the majesty and power of infinite life; thy waters touch the shores of all lands; thy stillness reflect the stars of heaven.

The qualities of spirit are not acquired by power, nor by might, but by the indomitable eternality of man's true being; not by overcoming obstacles, nor pitting man's frail strength against them, but by the hei-

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ght and breadth of vision—the Single Eye of the soul—the spirit that sees the nothingness of all things save God and God alone, in all functions, circumstances and conditions.

The same key fits every door, for life unfolds from within. As the bee awakens in its cell and comes forth, so the soul of man awakens and comes out of the house of limitation—whether physical, mental or emotional—and enters in to the fullness of his joy and freedom.

The Key is **Faith**, faith in the one beneficent Law of Life. That faith is born when one sees at last that every limitation is self-created and that, as we are the creator of that which is 'our world' we can create anew. The resentments we felt toward persons and circumstances fade away. We awaken from the dream of our creation and praise even the dream that brought Self-revelation. How can man know his strength, know who he is and what he is unless he is the victor in his world ? We cannot know spirit triumphant, unless there is that over which to be victorious.

The heart of man can never know happiness, contentment, peace, until his interests are outside self, until he has faced difficulties and "come over them," until he has seen the nothingness of pain, obstacles, fear, and doubt. Never will he know compassion for another who is finding the light within the darkness; never will he have the "healing touch" which brings gladness to the heart of his friend, until he stands in the light of truth and knows unrealities for what they are.

Yes, the Key is: to know there is but One Life; to live in this understanding; to let it live in you; to dwell in it, as the very nature of you; to base your every act and thought and desire upon it: to Be it, as a living embodiment of the One Life, an ambassador who represents the Whole.

Is it easy ? Yes.
Is it practical ? Yes.
Is it fulfilling ? Yes.

The Truth is **practical**. As one said of a man who had found a pearl of great price, he "went and sold all that he had, and bought it." So with the Truth. It is the pearl of priceless value,

Is it not practical to be free of fear, free of anxiety, free of hatreds, free of prejudice, free of doubt ? The practicality of such a life is beyond question. It seeks no argument.

Yes, Truth is **fulfilling**. Nothing can fill man's being and impart the zest for living, as can the freeing vitality of this truth.

Lose thy separate self, and thou shalt find thy Universal Self; in union with the One Life all that exists is included, and all that was thought to be lost is found again. Regrets are swept away in the engulfing tides of this Sea of Life. All has been a part of thine ongoing; every chapter has been necessary to the unfoldment of the Book of Life; every chip of the marble, a part of the unveiling of that statue which reveals thy true nature as the Son of God, in perfection of power and beauty.

Would you glimpse what the Open Door reveals when the Key is used ? Live this truth in deeds and actions , and you will see, and you will know. Unlock the door within thy separate self and step out into the liberty of the Sons of God, knowing there is only O N E. Use thy God-given Key, placed in thy hands when God breathed within thy nostrils and created thee a living soul.

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ABSOLUTE—What it is.

J. C. MAZUMDAR

ACCORDING to Cassirer, "It is the concept of substance which historically marks the line of distinction between investigation and myth".

Logically the concept of substance is different from the concept of being. Being, as concept, is the highest genus under which everything under the sun can be subsumed. It stands for points of similarity among things as dissimilar as a rose tint, a lunatic and a lone star. All things, properties, qualities, in short all that appears to exist in our mind or to our senses or outside are supposed to be instances of being. It is a postulate of commonness and identity of things that exist. Anything lacking in this common characteristic will be treated as non est, not-being. This means any thing or equality which we cannot be subsumed under this concept of being will be rejected as less than illusion i.e. as not-being. The distinction between subject and predicate is logico-grammatical; so is the distinction between noun and adjective. Substance, as a logical concept stands for the noun to which adjectives belong or are attributed. It is the substratum or common referrent with relation to the adjectives: We can straightway see that logically the concept of substances is a nisus to unity. It proves nothing, it reveals little. Whether the world is a substance we do not know by analysing this concept. Our thought postulates a unity. What appears as a postulate of thought may also be described as a grammatical habit. We must however hasten to correct the impression that thought follows grammatical habit. Grammar follows the needs of human thinking.

If mankind did not have the emotion or feeling of unity of dissimilar things, the apperception of qualitative unitariness, we would have lived eternally in closed and dumb worlds. Investigation commences on the assumption of identity among different things. Another very important result emerges from the concept of substance. Within a smaller context of things, when a small fraction or section of the world is under view, the idea of unity among a number of limited dissimilar things gives rise to the thought of (1) reality and (2) appearance. This means being breaks into reality and appearance. As a result of this deeper understanding degrees of reality come to be acknowledged. As a matter of fact, scientific investigation depends entirely on this belief that what appears to our mind and senses may not be primarily real; there may be more fundamental or primary realities or properties or both. The concept of substance thus helps and moulds investigation in fields of science.

The postulate of identity implies that the manifold of the universe has its ratio cognoscendi and its ratio essendi in some identical entity or entities. It is a form of the postulate of legality of paincare.

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There is another aspect of the concept of substance, Contradistinguished from substance is the concept of quality or attribute or property. Qualities or properties are supposed to belong to or in here in or are effects of substance. What this idea of "belonging to" or "inhering in" correctly means it is not clear. There are philosophers who would rather regard substance as a mere sum-total of qualities or properties i.e. as a name for convenience of thinking. The concept of substance therefore means either (1) the concept of the substratum or the support of qualities or (2) that of the cause or generator of qualities or (3) that of relatively permanent behind-the-scene self-identical entity or (4) that of the common characteristic or essence or universal of different things. It can hardly be denied that anyone of these meanings may be a fruitful source of controlled and continuous thinking.

The important question is whether these concepts are merely subjective formulae or are mere language or grammatical habits or are symbols of objective realities. These concepts are sometimes applied to sections or portions of the apparent world and sometimes to the entire universe. Metaphysics takes birth when the latter course is adopted. Incidentally we have also to face the question whether these concepts are intelligibly applied to the whole or entire universe in its totality. There is no logical or a priori answer to questions of this kind when applied to limited spheres of the universe. The answers with regard to sections has to be furnished by science and scientific investigation. However, much we may split and scan the concept of substance it will never help us in knowing whether within a given universe of discourse there is any substratum or cause or self-identical units or essence. Neither in the domain of mind nor in the domain of matter.

As has been stated there are four distinct ways of looking at the concept of substance. (1) Either it is looked at as the substratum of qualities or (2) it is the permanent point of reference for a number of properties, the referrent or (3) it is the cause of what appears to us or (4) it is the common and essential characteristic i.e. essence or universal of things appearing to us. These four ways are, however, not mutually exclusive.

From the point of view of metaphysics the questions that are likely to be raised are (1) about the nature of the ultimate substance and (2) about the number of the ultimate substance. Whether the ultimate substance is mental or material or natural; and whether there is one ultimate substance or there are two or more ultimate substances. Metaphysical questions cannot be answered by positive sciences. Specialised knowledge of small compartments of reality cannot yield knowledge about the whole circle of reality. This does not however mean that positive sciences are useless for metaphysics. They are in some sense, the raw materials of metaphysics; and they are definitely useful in so far as they are suggestive and interpretative.

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Logically there may be twenty five kinds of theories about ultimate reality. They are as follows:

(1) Substance as substratum is mental—(unitary)
(2) ,, ,, ,, ,, material—(unitary)
(3) ,, ,, ,, ,, neutral— ,,
(4) ,, ,, ,, ,, mental & material(dual)
(5) ,, ,, ,, ,, mental (plural)
(6) ,, ,, ,, ,, material ,,
(7) ,, ,, ,, ,, neutral ,,
(8) ,, ,,cause is mental—(unitary)
(9) ,, ,, ,, ,, material —(unity)
(9) ,, ,, ,, ,, neutral (unitary)
(11) ,, ,, ,, ,, neutral & material (dual)
(12) ,, ,, ,, ,, mental (Plural)
(13) ,, ,, ,, ,, material (Plural)
(14) ,, ,, ,, ,, neutral (Plural)
(15) ,, as essence is mental (unitary)
(16) ,, ,, ,, ,, neutral (unitary)
(17) ,, ,, ,, ,, mental (Plural)
(18) ,, ,, ,, ,, neutral (Plural)
(19) ,, as point of reference is mental (unitary)
(20) ,, ,, ,, ,, ,, material (unitary)
(21) ,, ,, ,, ,, ,, neutral (unitary)
(22) ,, ,, ,, ,, ,, mental & material (dual)
(23) ,, ,, ,, ,, ,, mental (Plural)
(24) ,, ,, ,, ,, ,, material (Plural)
(25) ,, ,, ,, ,, ,, neutral (Plural)

All that we perceive or are aware of are in motion. At the same time we perceive that a thing moves or a state changes. We perceive both motion and stability or stay. That is why we recognize things. Sciences also posit the existence of permanent elements e.g. atoms, conservation of energy, racial unconscious, race as a biological entity etc. Is there a substratum behind the universe ? Both perception and science tend to suggest that underlying apparent things of the world there are some enduring or permanent entities or elements which do not die or are not totaly destroyed or lost; these entities express themselves in different forms and they are inferred to exist. There is a substratum behind biological events viz. the substratum of a species perpetuating itself, the substratum of a race perpetuating itself: There is also the substratum of particles and energy behind material events. Is there a common substraaum behind all kinds of events, material, biological, mental and social?

The primary perception of the many-faced world is unitary; the distinctions in the world come later with science and sophistication. What is originally given as one is later taken as many. Besides the various spheres are inter-related. It is only reasonable in these circumstances to infer that there is a common substratum. But the argument does not appeal to everyone equally.

Some thinkers hold that there is only one reality which is mental in nature i.e. consciousness or mind; others think there is only one reality

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which is material in nature i.e. matter. There are still others who think there are two ultimate realities viz. one Kind and one Matter (extension) there are thinkers who hold that ultimate reality consists of many minds (*Purushas*) and many bits of matter (e g. Sankhya philosophers);or there are only many minds (*monads* – Leibniz) or there are only many bits of matter (e.g. atomists). That there are many minds and many bits or pieces of matter is also the common sense view and is observed everyday.

There is no proof that all minds are inter-connected. And minds do not seem to occupy space, nor are they in time.Consciousness reflects time; memory chain reflects it. If consciousness dwelt in time it would change from moment to moment. But consciousness of identity of seer (*Drastritva*) does not change. Consciousness, at least a part of it,is unaffected by time. Minds are distinguished from one another by distinctiveness of memory chains. The ego-sense behind the memory links is different in different persons. How then can we say that there is one mind behind this procession of lights and colours ? The seer is self-identical and consciousness of self-identity of the seer is without any qualification. It is therefore the same throughout or through all minds. Hence mind in the sense of seer consciousness is one. Memory links colour the consciousness as such, as it were, only externally. But all this is more painting than logic and we can plainly see that plurality of minds is not disproved totally.

The whole, we may say, is the substance. The whole reality consists of parts, some of which are more substantial than others. The substance is thus the Absolute that is the whole that is the self existant,which does not need to be and cannot be explained in terms of anything else. This can only be the whole which is one. Logically it is so. But where is the proof or verification ? Some parts can be treated as more substantial in the sense that the properties of the whole are more concentrated, and more expressed in them.It is the higher concentration which distinguishes the higher degree of expression from the lower one. The higher degree is as much a part of the whole as the lower,but the higher is more intensely alive as it is more concentrated. Everything is *sat-chit-anand* but man is more so than a piece of stone and among men some are more so than others. Genius is force because it is concentrated. God is equal to all in the sense that all properties of God are in everything but one is more akin to God than another, depending on proportion and concentration of properties. Equality and variation, both are somewhat true. Infinite properties of the Absolute are distributed in infinite proportions in an infinite number of things.

The entire universe in all its inter-related aspect constitutes the Brahman or the Absolute. The cosmic or metaphysical reality is one.One is sometimes taken to mean the membership of a series. The Absolute is not one in the sense of being a member of a serial order. The concept of unity is a metaphysical elaboration which gets verification in mystical

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and indeterminate experience. Is unitary substance a metaphysical necessity ? We must say, yes. There are similarities,connections and uniformalities in the universe. The sea animals are not related to mountains and monkeys. But there are similarities amongst them by virtue of their partaking of life and matter. They are equally related to distant stars that light our earth in millions of light-years. The very concept of metaphysical unity implies unity in diversity and many in one.Almost everyone has a feeling of basic oneness of the universe, the basic metaphysical feeling. Metaphysical thinking is an elaboration and analysis of the thought-feeling of unity. Those who regard or are compelled by habit or training or perversity to take the world as perpetually bifurcated or alienated are not metaphysicians.

SPIRITUAL REVELATIONS TO ZOE RICHMOND

UNDERSTANDING

Group work is the work of the future, make no plans that isolate you from your fellows, because the time is coming when those whose wealth and prosperity depends upon their isolation will be swept away. Reach out and unite with every one you can, however lowly, however apparently unpromising; in the time that is soon coming those will pass safely and happily through the storm who are in close bonds of sympathy with others.

*

You bear no more burden than you are able. No glass can hold more than it is made for. Some of you are very tired spiritually and mentally.Learn to look up,forget you are individuals, learn you are only universal souls, and you can draw from that which belongs to the Universe.

*

Once you get the power of helpfulness into your hands, you can help yourself and others and anyone. When it is a desire to help, not yourself or this or that person, when it becomes pure love reaching out everywhere as the Universal love reaches out, then you know that the gift that has come into your hands is the true light; the perfect jewel.

*

When you want to find unity between two diverse things, never try to force them together, but look back to their common root.

*

There is a call to arms, and this time you all stand equally placed . Not "Sons of Empire", all nations all creeds, sexes, minds and souls together.

*

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WASTE AND UTILIZATION OF PSYCHOLOGICAL ENERGIES

ROBERTO ASSAGIOLI

As the discovery of one's own ignorance is the begining of wisdom, it is good to get an idea of how ignorant we generally are about our inner life.

To put it bluntly, the fact is we are still in the barbaric stage, or just at the dawn of civilization, concerning the knowledge and use of our inner faculties.

This can be illustrated by some analogies. What would you think of someone who disbelieved the fact that the earth travels round the sun ? Or, in the practical field, of one who attempted to drive an automobile without knowing in the least the construction of the machine and having no knowledge of driving ? Or again, of a man who wanted to run a farm without any knowledge of agriculture ? Well, a similar ignorance is displayed by the average man and woman concerning their inner constitution, the laws which govern it, and the methods to deal with it.

We are constantly making mistakes in handling our own inner forces and those of others. One of the most frequent and harmful errors is that of repressing the vital and psychological energies, instead of working at their transformation in such a way that they can be utilized constructively. This attitude of repression is as stupid and doomed to failure as that of the farmer who has a torrent of water rushing through his field and who tries to reduce its course by throwing stones into it, or by building a dam in the middle of its bed. The water must inevitably overflow and finally break the dam or, if he succeeded in driving the water back, barrenness would be the result. The proper method would be, of course to build dams on the sides and make use of the water for irrigation, or for mechanical purposes, such as the construction of an hydraulic station or a mill. But with the inner waters of our instincts, passions and feelings we have not yet arrived at this simple wisdom, and the result is an enormous waste of vital and psychological forces with a corresponding amount of unnecessary suffering.

Also, a great mistake is the chase after excitement and diversion, in order to drown sorrow or to evade difficult or unpleasant problems and situations. This is just as unwise and useless as the conduct of a business man who neglects his business during a crisis and goes on a vacation.

Another frequent source of trouble is the fact that we often accept, without question or consideration, an impulse to act or to choose, which

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may arise within us, In this respect we behave as the man who, in his business or profession, follows the advice of incompetent individuals or the suggestions of an agent who is acting on behalf of his competitors. The impulses which prompt us to act are often dictated by incentives of which we are not aware and which would surprise us, and in some cases cause us shame or indignation; yet sometimes these promptings may appear to us as ideal and unselfish.

The systematic neglect and stifling of one of our most precious inner faculties, the **intuition**, is another serious mistake. In this respect we are as foolish as someone who, in spite of having access to the guidance of a very wise and experienced teacher, makes no use of the opportunity.

Many gross errors are also committed in regard to the use of the will. How stupid we should regard the conduct of a man who owned a car if,instead of driving it in the usual way,tried to push it from behind. Or, of a woman who, having the luck—so rare nowadays—of possessing willing and intelligent servants, distracted them and created chaos in her home by constantly nagging and interfering with their work. Yet we do the same with our subconscious servants, our inner energies, which we force and confuse,instead of handling them with wise methods of suggestion and imagination.

Equally gross and harmful are the mistakes which we continually make in our vital associations with others. The relationships between parents and children, and so on, furnish numerous examples of blunders which create much suffering and many complications. There are several factors,of course, which tend to increase the difficulties and unhappiness in this respect; for instance, the pressure of the present social structure and its economic demands; psychological disturbances and conflicts arising from the selfishness of individuals and from other causes. But the lack of psychological understanding creates just as much, if not more, trouble and sorrow.

It is difficult enough to understand oneself, and even more difficult to understand another person, especially when that person is the opposite sex. There are certain fundamental differences in the psychological make-up of men and women which are as great and much more subtle and intricate than the physical differences. The attitude and the reactions to conditions, to events, and other individuals differ considerably in the two sexes. This creates an endless series of misunderstandings,confusions and conflicts which embitter and spoil some fine characters and thwart lives which were full of promise.

In the face of these facts, it is clear that a serious study of those differences should be considered, not as a special department belonging to the professional psychologist, but as a part of the education of every intelligent young man and woman.

Deplorable mistakes are often committed by parents in regard to their children. Today we are appalled at the thought of the ignorance of

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hygienic rules and proper treatment of children's physical bodies which existed in the past. But parents, generally speaking, do not realize that they are still committing similar mistakes in regard to the minds and souls of their children, psychologically crippling them through mental "tight-bandaging", subjecting them to harmful suggestions through careless or unfit examples; soul-starving them through the neglect of their higher aspirations and intuitions. And we are speaking here of parents who are regarded as intelligent, cultured and loving.

Suppression, through constraint or ridicule,of the spontaneous activity of the mind and the imagination of the child,and artificial and hard methods of training often produce morbid repressions or violent reactions and create separation instead of the most needed confidence, loving understanding, and friendship between parents and children.

But also the other extreme on the part of the parents, namely their permitting uncontrolled license, their yielding to the child's every whim and caprice robs it of the needed constructive discipline and proves therefore also harmful.

These are only a few of the most obvious errors prevalent in family life, and which are the cause of many subsequent nervous and psychological troubles.

The same, more or less, is true of the relationships between teachers and pupils. In fact, the misunderstandings and frictions arising in every department of human life are the result of the psychological ignorance of the difference existing between the various types of human beings. Thus, the practical man does not appreciate, and will often despise the artist, the theoretical scientist or mystic. The artist, in his turn, seldom appreciates the relative value of the "bourgeois" virtues of the ordinary man. And the scientist often considers the mystic a useless crank, while the latter is prone to undervalue the right use of reason.

Specific kinds of difficulties arise, too, from the lack of understanding concerning the relationships between "superiors" and "inferiors". For instance, the servant problem is not only a domestic and social problem, but also a psychological problem. In our day, the personality of the servant is undoubtedly changing, and to persist in dealing with these "new" personalities in the old way and by the old methods is bound to produce discord and failure. The only way to arrive at a solution is to face the fact, however reluctant we may feel about it, and to change accordingly our behaviour and methods.

Another field, where this ignorance has sometimes grave consequences, is the social and political life of the nation, where a lack of mutual understanding among groups is so often apparent.

The very real conflicts arising from the clash of economic interests and the pursuing of different ideals are often complicated and sharpened by the lack of understanding between different political parties, religious denominations, nationalities, races. Important steps could be taken

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toward avoiding these conflicts and in establishing harmony and brotherhood in the world, if all **psychological** causes of strife and hatred were eliminated.

This brief survey of some of the chief kinds of mistakes arising from psychological ignorance are sufficient. I think, to show the urgent necessity of an adequate knowledge of psychology, and of a general application of the practical methods by which the waste and the suffering arising from those mistakes, can be avoided. In other words, we must realize the necessity of a new intelligent organization, and the economic and efficient use, of the psychological energies, parallel with that which is not being extensively used in industrial enterprises, i.e., "Taylorism", applied in the field of psychology,

In the last decades psychology has made rapid and important progress. The discovery of the existence of a vast realm of psychological activity going on in ourselves below the threshold of consciousness,—the study of hypnotism, dissociation of the personality, suggestion, the investigation of the instincts, the emotions, and their various transformations made by psychoanalysis; the study of the higher levels of the human soul made by religious psychology, the super normal phenomena disclosed by psychical research.—all these reveal to us how vast is this inner world; now many hidden treasures and latent powers lie concealed in it, and how wonderful are the possibilities open to those who will intelligently use them.

The "tools" for this inner work are already available. Parallel with the scientific progress in the field of psychology there has been the development of practical methods which enable us, if we apply them with the necessary care and perseverance, to achieve a profound re-organization of our personality, the healing of many mental and bodily troubles and the development of a greater power to help others.

Thus the study of Applied Psychology, the knowledge and practice of its methods, should not remain confined to special students and scientists, but should become part of the education of every man and woman.

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MEMORY WITHOUT A CAUSE

ROBERT POWELL

IN a recent article (*Darshana, 7*) the conclusion was reached that there is no such thing as a "rememberer" and that memory images come forward on their own account when challenged. This may seem a little strange at first sight. We are so accustomed to thinking in terms of cause and effect that we feel lost when we see something happening without apparent cause.But it must be realized that,coming right down to fundamental level, something like this may be expected to happen, the appearance of an effect which is its own cause (cf. the postulate of a"space time barrier" in my "*Zen and Reality*"). The search for an underlying cause implies that the event was not fundamental: if a cause is found then the event was an "effect" and could not therefore have been fundamental.

The confusion in our minds is caused partly by the fact (at least for those of us in the West) that brought up in the Christian tradition, we tend to look for a First Cause, a Prime Mover, without ever asking whether such an animal can or does really exist. Another factor is that the mind cannot see events otherwise than as bound by time, that is in a cause-and-effect framework, for the mind itself is composed of time(being the bundle of memories)and therefore it can never grasp the timeless, the unconditioned. A similar problem in classical philosophy is that of the body-mind relationship. For many hundreds of years philosophers have searched for a causal relationship—either body shaping mind, or mind shaping body—and have found none. At last they have come to console themselves with the postulate of a "psycho-physical parallelism" (whatever that may mean). All these difficulties crop up so long as we cannot see through the illusion of duality, and this illusion is imposed on us by the limitations of the mind, the very tool that is used in the endeavour to find a solution to the problems.

But perhaps it may be possible to see directly--without intellectualizing—that the notion of causality, viewed from outside time, is simply reduced to one of "association", for it is the discriminating mind which cuts up that which flows eternally, into the static units of "cause" and "effect". For without the mind that abstracts, classifies and pigeonholes, where does cause end and effect begin ? Then, ultimately, we may see that even the notions of "association" and "flow" are reduced to simple "being" in the timeless state, the fundamental level of reality.

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cf. Publisher, Allen and Unwin. London,1961;Taplinger Publishing Co.New York,1962.

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However, of far greater importance then the above considerations, which although interesting in themselves are only of academic interest, is the practical recognition that individual consciousness has a built-in self-cleansing mechanism, which is capable of automatically digesting psychological memories, so that at no time a harmful residue is left. This becomes operative in a spontaneous process of meditation when there is full attention to what one has "on one's mind". This verbal expression in itself is telling because it implies that there is a certain psychological tension which has to work itself off. Unfortunately we live such hurried lives nowadays, and we are all the time trying to "concentrate",planning and calculating our future actions, that we have destroyed this innate capacity of mind.

Thus the torturing thoughts, constituting the turmoil in the mind, fulfill a definite purpose. They arise so that we should accord them full attention, and not escape by repressing them or trying to become oblivious of them. In this way only is catharsis to take place. People who think that the spiritual person is one who is always serene, never disturbed, or who have made this state their ultimate goal, will not be able to understand this, for they have made the search for serenity another escape. The truly spiritual person, on the contrary, is continually being disturbed; every moment is a new crisis.

What does all this mean in practical everyday life ? It means, does it not, that I don't have to do a thing, as long as I am integrally aware of outward impressions and my reactions towards them. It also means, when I have a problem that recurs again and again,that I look at the problem—not in the narrow sense,like the mathematical problem which only requires a certain answer—but in the fullest sense,which comprises enquiring into the relationship between the problem and the problem maker. The problem maker is the conditioned entity whose undigested past is always giving rise to further thought—thought which is ever driving,compelling, stirring, preventing the state of serenity in which there is not a single problem. Then going deeper still, there is the realization that in actual fact there is no relationship between "me" and the problem, for I am the problem. Thus there is no longer any need to do anything about it: in fact, the trying to find the solution to the problem is the avoidance of the problem (and because, more subtly,this very seeking is the problem) The seeing of the "I" as the collective reacting of past memories,creating complications in the now, reduces all problems to the one, and at the same time it reduces this one to Nothingness.

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FOUND–The Birds Of Soloman

NANDOR FODOR

FEW Talmudic legends have left such an enduring impression on the imagination of scholars and simple people as that of the Shamir, the diamond insect. According to Rabbi J.L. Friend of Manila (Masonic Family Magazine, September-October, 1949) "by it, Moses, the Law-giver engraved the tablets of the Ten Commandments and the precious stones on the High Priest's breastplate",—an admission of something suspected that while the inspiration may have come from high, the actual carving of the Tablets was the work of human hands. The Shamir is said to be one of the ten marvels created on the eve of the first Sabbath. "Its size is that of a grain of barley, but it is endowed with miraculous power; it can be split the hardest stone, metal or anything by merely touching it."

To this miraculous power is ascribed the startling feature of King Solomon's Temple, an architectural puzzle throughout the ages down to our present days, that in the days, when religious usages had absolutely forbidden the use of iron tools in the building of an altar of Temple, its rough stones, in the words of Josephus, "have been fitted into one another quite harmoniously, without the work of hammer or any other builder's tool being observable, but the whole fits together without the use of these, and the fitting seems to be rather one of free will than of force through mechanical means."

The same mysterious building technique is observable in the still standing colossal stone work of the Incas in South America and a close examination of the legends handed down through centuries clearly indicates that we are dealing with an ancient, lost secret the value of which in biblical and prehistoric times was immeasurably great.

We need not concern ourselves too much with the fairy tale setting in which the Talmud places the finding of the Shamir. Sufficient be it that while the information of its whereabouts came from Asmodeus, the King of the Devils, the infernal powers had no hold over it. It was a bird, the moor-hen (according to Rabbi Friend the woodcock) which carried the worm under its wings and it was captured from the bird by guile. The nest of the bird was covered up with a crystal plate, so that the bird could not get to its young. Whereupon it dropped the Shamir on the plate, which instantly shattered. Beniah ben Jehodaiah, King's Solomon's emissary freightened the bird away with a lusty cry, and in a leaden box (as if it had been radio-active) brought the worm to King Solomon. Thus the Temple was built and when it was completed, the Shamir vanished.

The moor-hen, from harboring the worm, is also called Naggar Tura, the mountain carver. The name shows some hesitation as to whom

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the credit is to be given to a worm or to a bird. In later versions the moor-hen is replaced by a raven and the bird by a stone, later by an eagle and the bird is said to be the Philosopher's Stone. The bird always stayed, but the worm and stone gave way to a plant or flower. Aelian, the Greek speaks of the hoopoe bird which, if its nest is plastered up in the crack of a wall, flies off in quest of the plant Poa. The bird applies the plant to the plaster which splits and the nest becomes accessible. Pliny describes the bird as a woodpecker (as does Albertus Magnus centuries later) and in the English Gesta Romanorum it is an ostrich. Vincent of Beauvais speaks of the blood of the Thamir, a little worm which, sprinkled on marble, makes it easy to split. Worm or plant, it is apparently the juice (blood, slime, or acidic secretion) which does the trick. In the story of Ali Baba and the Forty Thieves, it is the word **sesame** which opens the rock walls of the robbers' retreat. But the sesame is a plant (sesamum orientale) of which we all have heard, and in many mediaeval fairy tales the treasure cave opens when a mysterious blue flower is applied against the wall.

The germ of truth behind all this folklore material has now been found. We owe the discovery to the late Col.H.P. Fawcett, the explorer lost in the jungles of Matto Grosse nearly thirty years ago. His papers describing his previous explorations have been collected by his son and published. I have a copy of the English edition, entitled *Exploration Fawcett*, and this is what I read in it on pp. 75-76.

"Talking of birds, all through the Peruvian and Bolivian Monata is to be found a small bird like a kingfisher which makes its nest in neat round holes in the rocky escarpments above the river. These holes can plainly be seen, but are not usually accessible, and strangely enough they are to be found only where the birds are present. I once expressed surprise that they were lucky enough to find nestling holes so conveniently placed for them, and so neatly hollowed out as though with a drill.

"They make the holes themselves !" The words were spoken by a man who had spent a quarter of a century in the forests. 'I' ve seen how they do it, many a time. 'I've watched, I have, and seen the birds come to the cliffs with leaves of some sort in their beaks, and cling to the rock like woodpeckers to a tree, while they rubbed the leaves in a circular motion over the surface. Then they would fly off, and come back with more leaves, and carry on with the rubbing process. After three or four repetitions they dropped the leaves and started packing at the place with their sharp beaks, and—here's the marvellous part—they would soon open out a round hole in the stone. Then off they'd go again, and go through the rubbing process with leaves several time before continuing to peck. It took several days, but finally they had opened out the holes deep enough to contain their nests. I've climbed up and taken a look at them, and, believe me, a man could not drill a neater hole."

Col. Fawcett was not inclined to believe the story and the man went

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on explaining that the birds know of a leaf with a juice that can soften up the rock till it is wet like clay.

Later on, Col. Fawcett met an Englishman whose reliability he could not doubt. and this man told him the story of his nephew whose four inches long Mexican spurs, with rowels bigger than a half-crown piece, were eaten away mysteriously by some jungle plant through which he walked, A native questioned him and he remembered a thicket of dark reddish leaves through which he crossed. "Thats it, said the man. "That's what eaten your spurs away.That's stuff the Incas used for shaping stones. The juice will soften up the rock till it's like paste."

As I quoted this wonderful story before the members of Ehlers Lodge, up rose from the side-lines my friend, Joseph Stern and said:

"I have been recently in Guatemala, and I have seen the same kind of holes used by birds for nesting in rock walls. I could reach up to one of them. Drilling could not make them more perfect. The guide said that it was a species of small birds that uses them for nests. It makes them safe from bigger, predatory birds. They make it themselves but they chose rockwalls the hardness of which they test before. The hard walls they leave alone and set to work on the softer ones with some leaves which they rub against it just as Col. Fawcett decribed it."

Here is wonderful coroboration from a traveller in Central America that the moor-hen of Solomon are not legendary and that the secret of their craft has been handed down to our own days. It is—as Aurel Rasko reminds us—a secret of loosening hard stone surfaces, and also of binding them. The terrible mediaeval practices of shedding human blood and mixing it with cement in order to make a wall stand (as illustrated by the Hungaran ballad of "*Komuves Kelemen*") may have originated in that version of the "Thamir" of Vincent Beauvais in which the little worm's blood made the marble split. The same power that splits may bind again and all blood sacrifices in savage past served the purpose of binding the faithful to the invisible power that they worshiped as the great architect of the universe.

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A GREAT GERMAN INDOLOGIST
THE LATE PROF. Dr. HELMUTH VON GLASENAPP

WILFRIED NOELLE

INDOLOGY has suffered a heavy loss by the death of Prof. Dr. Helmuth von Glasenapp, which occurred in Tuebingen, Federal Republic of Germany, on June 25.

The foremost German Indologist of recent decades, Prof. von Glasenapp represented an earlier generation and tradition of scholarship. In the words of an Indian Scholar, who had met the professor some years ago, Prof. von Glasenapp had the "tradition of the Indian pandit, the precision of German professor and the width of vision of the international scholar that he was".

Born in 1891, Prof. von Glasenapp studied Sanskrit and took keen interest in India's spiritual tradition even when he was a young student. He worked for a long time at the University of Koenigsberg (now under Soviet administration). When, at the end of the last war Koenigsberg came under Soviet control, he went over to Tuebingen University in the Federal Republic of Germany where he held chair in Indology till 1959. He was the author of numerous books on Hinduism, Buddhism and Jainism, a work entitled "*Kant and the Religions of the East*" (1954) being particularly worthy of mention. At a special ceremony held in 1953 in honour of the professor, Mr. S. Dutt, the then Indian Ambsasador to the Federal Republic of Germany, referred to the professor as a scholar who stood by the side of India during the darkest days of her struggle for freedom.

Prof. Glasenapp participated in the UNESCO Round Table discussion on the philosophical and cultural relations between the East and the West held in New Delhi in 1951-52. On that occasion, he renewed his acquaintance with Dr. S. Radhakrishnan whom he had met first as long ago as in 1926. In 1956, he participated in the 2500th anniversary celebration of the Buddha's *Parinirvāna* held in New Delhi.

In recognition of his eminence in the cultural field, he had been admitted to the Order of Merit in the Federal Republic of Germany.

Many scholars, including his former students, celebrated the 70th birthday of Prof. van Glasenapp in 1961 and presented to him a commemoration volume containing his articles. In a foreword to that publication, Dr. S. Radhakrishnan paid this tribute to the professor. "From the day when I first met Prof. von Glasenapp in India many years ago, I have regarded him as the most profound living German Indologist. Indefatigable in his studies and cautious and objective in the evaluation of the material he gathers, his interest in India's ancient heritage has been marked by that spirit of dedication for which German scholars of earlier generations—Max Mueller, Paul Deussen, Herman Jacobi, Rudolf Otto and many others—have been justly famous".

Prof. Helmuth von Glasenapp was a fellow of the Indian Council for Cultural Relations and a member of the All-India Sanskrit Parishad and several other cultural institutions in India. His last book on Indian Culture was devoted to a study of the influence of Indian thought on German poets.

The professor had planned to visit India during the ensuing winter to participate in the Oriental Congress.

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OBITUARY NOTES



SWAMI SIVANANDA

DEATH, the eternal and grim enemy of life has deprived *Darshana* of one of its eminent contributors and admirers, **Swami Sivananda** of Rishikesh who passed away on the 14th July, 1963. He was a unique personality who by his life long and earnest efforts brought spirituality home to many people all over the world. He was a great writer, a great person, and a great teacher. It was a pleasure to come in contact with him. He was a great organiser whose genius created the colony at Rishikesh called Sivanandnagar; a great society the Divine Life Society which has its membership all over the world. Although a great admirer of Hinduism he hated no religion and admired the teachings of all the great propounders of various religions. He established a big press and wrote and published more pages than many of the well known writers. His passing away is really a great loss to people interested in religion, philosophy and practical mysticism. We offer our deep condolence to his disciples.

Prof. Dr. Helmuth Von Glasenapp

The Readers of *Darshana* International will share our sorrow at the passing away of the great Orientalist of the world **Prof. Dr. Helmuth von Glasenapp** who was a personal friend of the General Editor Dr. B. L. Atreya On Page111 we have published an article about him by Dr. W. Noelle who knew him well. He was one of the few Orientalists of the West who has written on the *Yogavasistha*, which is one of the greatest mystic work of Ancient India. We offer our deeply felt condolences to the members of his family and to the countrymen of Federal Republic of Germany who have lost in Dr. Helmuth von Glasenapp an International scholar of repute. Unfortunately this loss is irrepairable.

J. P. Atreya

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New Books

The Spirit Of American Philosophy: By John E. Smith New York : Oxford University Press. 1963 P. 219 Dollars 5.00.

Professor Smith chairman of the department of philosophy at Yale University believes cultural America is still in many ways an undiscovered country, perhaps undiscovered to Americans themselves. This urgently needed book gives a new image of the American mind and should be required reading in philosophy courses. He attempts a difficult feat because American philosophy is a complex mingling of diverse themes and moods. We could say of it what Romain Rolland said of the culture of Europe, it has no common book, no one poem accepted as the common heritage and faith of all.

Yet Professor Smith captures its inner spirit and underlines the outlook of William James, philosophy "is for men in every walk of life and the ultimate guide of human conduct."He selects five representative thinkers, the logician C. S. Peirce, William James, Josiah Royce, John Dewey, and A. N. Whitehead. Their work together spans the golden age of American Philosophy and exemplifies "a modern version of the ancient humanistic tradition" from the Greeks to the Enlightenment.

Bernhard Mollenhauer

The Cosmic Order and Our Mental Health : by S. J. Velinsky, published by Interpress Limited, 12 Montagu Street, London W.1, England, 1963 Pages 471, price Dollars 5.00

The author is Ph. D. of Charles University, where he was Professor of Education, incharge of Psychology till 1949. He developed an experimental school for individualized instruction, founded an Institute for Educational Research in Prague. At present he is working as professor of Psychology in one of the American Colleges. He is author of many well known works which include—*Foundations of Social Psychology, Individualization of Methods* (3 vols) *Psychology of Attention, Research on Learning Capacities of Pupils, Way to our Children.*

The book deals with what the author terms 'Protosubstantialstic philosophy' and is intended by the author to be a 'Guide post towards International friendship for the man of the Space Age'.

It is really a book of the present age and should be read and possessed by every man who seeks for a healthy outlook on life in this scientific age. It is a strong plea for a cosmic spiritualisic and moral philosophy for want of which the contemporary man tends to become mentally sick disintegrated, and improperly adjusted to his social and natural environment. The method of the treatment used by the author is thoroughly scientific and rational.

In the Introduction the author dilates upon the importance of philosophy for mental health and quotes a good number of well-known psychologists and psycho pathologists in support of his thesis. Philosophy, according to the author, serves "to solidify the personality structure." Besides the Introduction there are eight chapters in the book. In the first chapter the author tries to establish that "our cognition is reliable, that it can reach solid knowledge, even if not yet an absolute one" we should improve our cognitive technique in order to gain better knowledge of the objective world . In the second chapter he comes to the conclusion

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that "there is behind the variations of the world phenomena a stable order which is super individual" residing at the bottom of all beings. In the third chapter the author establishes the existence of "a universal and all embracing Being from which all diversified entities evolve and in which they return." "This Being is the guarantee of a super individual order that rules the universe, and simultaneously it is the super-individual criterion of good independent of any arbitrariness of any man. In the fourth chapter he postulates that "the Cosmic Order and the Supreme Being standing behind it, are the guarantee of a criterion of ever lasting values. This criterion is independent of any individual, it is objective, superindividual, immutable, and independent of time, place and doctrines" In the fifth chapter, he contends that man by his "effort, planning and better knowledge, can effect a permanent improvement in the conditions of life." In the sixth chapter, he argues that man's real power and need is spirituality which " provides us with effective links of man to man." Men can develop spirituality by mental co-operation and living according to the best in them. In the seventh chapter he contends that man can increase his longevity and his spiritual life can be perpetuated" by human creative effort in spiritual and cultural values." In the eighth and the last chapter, he concludes that in course of time, man will surely master "cosmic phase", and "will become a policy making factor in the univese" to reach that goal man should propose himself spiritually "along the line of a better creative cooperation of all mankind, of more knowledge, better social organization, better technical equipment and wider life-span"

The author deserves our congratulations on having given to the scientific man of today a spiritual outlook, mainly based on the findings of modern science which he badly needs. Although the book does not refer to the recent important discoveries made in the field of mind and supermind, and does not refer to the philosophical outlook embodied in the Ancient Wisdom, as Dr. Johnson has recently done in his *Imprisoned Splendour* and other books, it is a praise worthy attempt to serve the cause of cosmic spiritualism and a super individual order of moral principles and values. We recommend the book to every library and to every serious reader and thinker.

B. L. Atreya

Principles of Sociology : By Dr. Ajit Kumar Sinha, M. A., Ph. D. (Illinois), Head of the Post-Graduate Department of Philosophy, Birla College of Arts, Pilani. Price: Rs. 10/-. (Foreword by Dr. Wilfred Noelle, Second Secretary, German Embassy, New Delhi, and Visiting Professor, Birla College of Arts, Pilani).

Good introductory books on a subject like sociology, which has been on the syllabi of the universities of this country for some time now are indeed a boon to Indian students. Such books do not only help them grasp the fundamentals and the groundwork of the subject but also tend to provide them with a stimulus to know more of it. To this end Dr. Sinha's book makes no mean contribution.

An author of five publications already, Dr. Sinha gives in this book an ample proof of his craftsmanship and experience in tackling a theme, which is by no means pedestrian, with understanding. And the fact that he has also imparted to it a touch of the grandiose, by weaving into his own pattern the views of the great Western sociologists, might appear to to be slightly overdone but it does not at any rate release a jarring note, nor does it show incongruity. The author is, after all, dealing with a sub-

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ject whose roots lie in the West. If he has given too many quotations in the book it is because he found this process to be inevitable.

Sociology is undoubtedly developing at a rapid pace but the author has not allowed himself to be browbeaten into presenting something that should find itself wanting in momentum to such an extent as to be out step with the swift current of sociological thought. It is abundantly clear from this book that he has striven to reach his conclusions by an intelligent analysis of those social customs and human tendencies which are more tenacious and less ephemeral.

The book consists of 293 pages and has seven chapters. Each chapter has at its end a list of reference books with names of authors and publishers together with the year of publication in each case. The reader should find it particularly helpful and profitable.

B. M. Nevil

Aristotle Dictionary, Edited by Thomas P. Kiernan with an Introduction by Theodore E. James, Published by Philosophical Library New York, 1962 pages 524, Price Dollars 7.50

In the foreword the editor Thomas P. Kiernan gives a brief biographical sketch of Aristotle and in the Introduction Professor Theodore E. James gives a detailed analysis of the Chief Works of Aristotle and the views contained therein. The Introduction covers 156 pages and greatly adds to the value of the work. The Dictionary presents Aristotles views on various topics alphabetically arranged. The views are quoted from the various works of Aristotle, detailed references to which are given. Aristotle is as respected in the West as the Vedas in India. Every Scientific treatment of any subject begins with the opinion of Aristotle. And it is remarkable how encyclopaedic the knowledge of Aristotle was. in fact in Aristotle the whole wisdom of the ancient Greece is found embodied. To know Aristotle is to have the knowledge that was Greek. The Editor has done great labour in gathering and presenting the views of Aristotle on all and sundry topics, and thus making the ancient wisdom of the West available to the reader. The book deserves to be kept in every library.

The Upaniṣads, Translated by F. Max Muller in two Volumes, Volume I in 320 pages and Vol. II in 346 pages, Price Dollars 2 each, published by Dover Publications, Inc. New York. This translation of the Principal Upanishads by the famous Orientalist was first published in Volumes I and XV of the "*Sacred Books of the East*". It contains the full texts, translated into English and annotated, of the following Upanishads: *Chāndogya, Kena, Aitareya, Kauṣitakī, Iśa, Katha, Muṇḍaka, Taittiriya, Bṛhadāranyaka, Śveta Śvatara, Praśna, and Maitra yani Upanishads.*

It is needless to say how important the *Upanishads* are as deep reflections on human life and experience. Max Muller was not only a great Western Sanskrit Scholar, but also a great thinker. His translation and annotation of *Upanishads* have a unique value. Besides the translation and annotations the works a preface of Max Muller to the *Sacred Books of the East* and his *Introduction to the Upanishads* are also published. The original Edition for long being out of print Dover Publications have done a great service to the students of Oriental Literature and Philosophy by republishing them. These Volumes should find a place in every library.

The Texts of Taoism In Two Parts : I and II , Translated by James Legge, pages 392 & 336, price Dollars 2.00 each, published by Dover Publications, Inc. New York.

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Dover Publications have also done a great service to the students of Oriental Philosophy and Literature by republishing the Vol. XXXIX and Vol. XLof the *Sacred Books of East*, edited byF. Max Muller which are among the *Sacred Books of China.*

The Texts of Taoism are as valuable to students of Philosophy and Mysticism as the *Upanishads*, and they represent the most ancient philosophical thought of China as the *Upanishads* to the ancient thought of India. The thoughts also bear remarkable similarity. They deserve to be read and understood by every serious student of life.

Classics In Logic : Edited by Dagobert D. Runes, published by Philosophical Library Inc 15, East 40th Street, New York 16, N. Y. pages 818, price Dollars 10.00

The Editor and the publishers are well known in the world of Philosophy. Dr. Runes has not only edited many great works but is also the author of many thought provoking and inspiring works. In this work he has made a judicious selection from the works of the Western world's great thinkers on logic and epistemology. 63 Such selected pieces make the reader fully and well acquainted with man's ways of thinking which are the same all over the world and in all ages and races. Those who cannot afford to go through volumes on Logic and Epistemology will do well to possess and read this one Volume. Even those who specialize in this branch of knowledge will profit by reading this one volume in which all the aspects of human thinking and gaining knowledge are dealt with. The Editor has given a small Preface to the book a few sentences from which may be quoted here for the benefit of the reader of **Darshana** "Man's principles of logic,the fundamental categories of his thinking process, are universal and identical, not only in today's world, from nation to nation, race to race, group to group and sex to sex, but also historically" (**Preface**, v)....."Man's thinking processes are universal in time and space" (vi) "However, man's thinking differs not only in time and space, but even from person to person, from sex to sex from group to group, in accordance with the differences in the respective emotional grounds in which that thinking is rooted"

Theories of thinking vary in accordance with their emphasis on the universality or particularity of human thinking. It is interesting to be acquainted with them in order to understand the secret of thinking on which most of our life depends. This one volume is enough to give the reader this insight.

Systems of Ethics and Value Theory : By William Sahakian, Ph. D., published by Philosophical Library, New York, pages 448, price Dollars 6. 00, 1963. It is one of the best books on Ethics we have come across, and we strongly recommend it to all those who want to be acquainted with all the views of western writers on ethics and values. It deals with the views of 29 great thinkers of the western world arranged under eleven different schools. The treatment of the author is very clear, simple and exhaustive and completely based on the original writings of eachthinker. At the end of each chapter, dealing with each thinker, there is a critique of his views by the author. The author as well as the publishers deserve congratulations on producing and publishing such an interesting book on such an important subject.We recommend it to every university student of ethics as well as to every general reader, as the book is written in a simple, systematic and intelligible style.

Despotism : *A Pictorial History of Tyranny* : by Dagobert D. Runes

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published by Philosophical Library, New York, pages, 269, price Dollars 12.50.

The author, who has to his criedit a number of great works and is the former Director of the Institute for advanced Education and editor of a number of well known philosophical Journals has rendered a great service to humanity by producing this work, which, the author himself say, has been conceived and written "with anger and purpose" that is, in "purposeful anger." It deals with atrocities that human beings in power have done to the weak and the masses. It has 34 chapters which describe the various kinds of tyrannical deeds done in all periods of human history by man to his fellowmen under the influence of power, greed, sex religion and racial prejudice. How cruel man has been to man, and what ignoble deeds he can do when intoxicated by his animal passions and emotional prejudices not only in the barbaric past but even in the civilized to day, is pictorially revealed by this work, which contains hundreds of pictures (paintings and photographs) inserted in proper places. It is a book for the common man to tell him the plight undergone by his fellow beings under the rule of kings, priests, political exploiters, colony builders and expansionists etc., Man beware of man when he is under the controlling influence of some animal passion, greed, power, or fanaticism. No one can go through the book without experiencing anguish and anger, without feeling ashamed of human history which has so far been characterised by cruelty, tyranny, and selfishness and in which the powerful have always taken delight in torturing and exploiting the weak. Every library should have a copy to it.

Philosophy and Culture : East and West, Edited by Prof. Charles A. Moore, published by the University of Hawaii, Honolulu, 1962, price Dollars 10. 00 pages 832. It is a report of the activities of the Third East West Philosophers, Conference, held in Hawaii in 1959. It contains highly valuable papers on various aspects of the cultures of India, Japan, and the West and also some papers on Islamic culture. All the papers present their themes without any criticism or unpleasant reflection on those of other cultures. Besides the Introduction by the editor, Prof. Charles A. Moore, on "East and West Philosophy in Practical Perspective" there are no less than 44 learned papers on various aspects of the cultures of the various countries of the world divided under the following heads: I. The Relation of Philosophical Theories to Practical Affairs, II. Natural Science and Technology in Relation to Cultural Institutions and Social Practice III. Religion and Spiritual Values. IV Ethics and Social Practice, V Legal, Political and Economic Philosophy, VI. Conspectus of Practical Implications for World Understanding and Co-operation, and an appendix which contains the texts of the 5 Public Lectures that were delivered under the auspices of the Conference. There is no doubt that a study of this volume will tend to right understanding of the various cultures at present living in the world and the consequent will to incorporate the best of each in the future wrold culture which will be one and not many, althrough multisided this book will give the reader much more than several volumes dealing with different cultures will give. Hence we recommend it to every public library and to every lover of books.

The Philosophy of Shri Aurobindo, by Dr. Ram Nath Sharma, published by Bharatiya Prakashan Mandir, Kashi Sadan, Pan Dariba, Lucknow, pages 192, price Rs. 12 or Sh.21, Dollars 4 00. 1960. This book was originally submitted as a thesis and subsequently approved for the Degree

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of Doctor of Philosophy of the University of Allahabad, India. The author is a brilliant and promising writer and teacher of philosophy and is at present working as a Lecturer in Philosophy at the Meerut College, Meerut. Dr. Indra Sen, a well-known follower of Shri Aurobindo, has written a nice foreword to the book in which he says, and we agree with him, "Dr. R. N. Sharma has, I think rendered a signal service to the cause of the new thinking. Comprehensive synthetic and intuitive—by making this study of Shri Aurobindo's philosophy, which is a great pioneering attempt in this direction. This study is bound to serve as an easy, interesting and an effective introduction to the reading of Shri Aurobindo himself"The book, besides Introduction has the following 11chapters: General Principles, Knowledge and Truth, Methods, Absolute and God, Self and Individuality, World and Creation, The Evolution (continued), Religious experience, Integral Yoga and Human Evolution, and Conclusion. The book is a nice introduction to the study of the philosophy of one of the greatest thinkers of India of the recent past, who is becoming more and more popular all over the world.

What Interests you most in the World To day? Variations on a World Theme, Edited by Julie Medlock published by Wilco Publishing House, Bombay, pages 186, price Rs. 2.00 in India only.

It is a collection of small articles by 23 thinkers on various themes of the present day interest.

Before each article a Personal Glimpse of its writer is given,which also makes an interesting reading. The editor Contributes a small Introduction. Towards the close of the book there is also a Personal Glimpse of the Editor herself given by John S. Chambers. The book is indeed "a journalistic adventure in the cause of better International understanding" and can be read as a journal in a railway or plane journey with interest and profit.

The Art of Thinking, by Dogobert D. Runes, published by Philosophical Library New York pages, 90, price Dollars 2.75, 1961. The author a Doctor of Philosophy is an author and editor of a number of well known books and journals most of them published by the Philosophical Library. In this small but worth reading book he has analysed the thinking of man in various fields and laid bare the underlying, conscious and unconscious, explicit and implicit, emotional and instinctive motivations. They determine not only the attitudes of the modern man but also their percepts and concepts and also their manner of thinking and acting. All sorts of thinking, religious, social, cultural and even scientific although moulded in universal and common logical forms and categories is motivated, and to know the emotional motives is to know why different people arrive at different conclusions from the same data and the same premises.The book makes a very light and interesting reading and can be read with profit by a non-philosophical reader.

The Metaphysics of William James and John Dewey : Process and Structure in Philosophy and Religion, by Thomas R. Martland Jr. published by Philosophical Library, New York, 1963, pages 210, price Dollars 4.75.

This book is a specialized study of two great American thinkers of the recent past William James and John Dewey. It tries to establish the thesis that in certain respects philosophy is fundamentally congruent to religion. In the words of the author, who is a Doctor of Philosophy from Columbia University and teaches it at Lafayette College, "The

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philosophical material which this book presents in order to show the congruence of philosophy and religion is that literature critical of pragmatic naturalism in America from approximately 1900 to 1950 and pragmatic naturalism itself as represented by William James and John Dewey' (Introduction page XI.) The book is neatly printed.

In Praise of Philosophy by Maurice Merlean Ponty, translated from French by John Wild and James and M. Edie, published by North Western University, pages 67 price Dollars 3.50. The author was a Young Professor of Philosophy (in fact the Youngest man ever to occupy this post) at College de France, and this book was his inaugural lecture on January 15, 1953. It was published in French as *Eloge de la Philosophie* and of the translators John Wild is professor of philosophy and Chairman of the Philosophy Department at the North Western University, and James M. Edie is an Assistant Professor of Philosophy at North Western University. This book is the first of a series on studies in Phenomenology and Existential philosophy. According to the translators, the author of the book made important contributions to Phenomenological investigation of human existence in the life, world and its distinctive structures. We cannot help but think of him now as a free thinker of our time, whose depth and originality was expressed not only in his words and writings but also in his life (Preface page xv). In this lecture there is "an attempt to express what the place of the philosopher is in the society of free men in free research". The author has tried to define the role of a philosopher in his age and according to him a "philosopher is a man of action" of a special kind; he joins movements, he writes manifestoes, he engages in political activity but only in so far as he himself remains "free" not only to subject, his action to critical reflex but even to reject it altogether at the moment when it begins to go beyond its original intention, when it begins to "carry him along" with it into positions he did not intend" (xvii). The author "felt that out of the investigations of phenomenology and existential thinking a new approach to the life-world was being formed and that on this basis a renewal and revival of philosophy at every level and in every branch was becoming possible." The book contains six sections dealing with Lavelle, Bergson, Socrates, Religion, History and Philosophy. Every serious student of philosophy will find the book thought provoking.

BOOKS ALSO RECEIVED— **J. P. A T R E Y A**

Shriniwas G. Sathaye : A **Philosophy of Living : An Intoduction to Ethics**, Asia Publishing House, Bombay price Rs. 15.00 pp. 285.

Anima Sen Gupta : **Chāndogya Upanishad:** Samkhya Point of View Monoranjan Sen 65/64 Moti Mahal Kanpur, price Rs. 3 pp. 40.

A. G. Javadekar : **Axionoetics,** Allied Publishers Pvt. Ltd. Bombay Rs. 16 pp. 187.

Samuel L. Hart : **Ethics,** Philosophical Library New York, Dollars 3.75 pp. 127.

E. Stcherbatsky : **Buddhist Logic,** Two Vols. Dover Publication New York, Dollars 2 35 each.

S. L. Rubinstein : **Prinzipien und Wege der Entwicklung der Psychologie,** Akademie—Verlag, Berlin, D. M. 24.50. pp. 296

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Our Contributors to this Number

Atreya, B. L.—Retired Univerersity Professor and Head of the Departments of Philosophy, Psychology and Indian Philosophy & Religion, Banaras Hindu University. Hony. Director Indian Council of Human Relations (Delhi) & Hony. Director Child Guidance Clinic, Varanasi. Honoured as Knight Commander (Italy) and Padmabhushan (India). Author of *The Philosophy of Yogavāsiṣṭha, Yagavāsiṣṭha and Its Philosophy, The Spirit af Indian Culture, Yogavāsiṣṭha aur uske Siddhānta, Moral and Spiritual Foundations of Peace, An Introduction to Parapsychology* etc.,

Assagioli, R.—Born in Venice, Italy in 1888. Obtained his Medical Degree at the University of Florence, specializing in neuropathology and psychiatry and pursued at the same time psychological and philosophical studies. Has been the editor of 'Psyche'. Evolved a new and comprehensive method, aiming at a complete reconstruction of the personality, called Psychosynthesis which he applied not only to patients, but also teaches as a method of education and self-education. In 1928 he founded in Rome the "Institute of Psychosynthesis." He has written more than one hundred and fifty articles. He has travelled extensively and has lectured in Switzerland, England, France and America.

Balasubramanian, R.—Reader Department of Philosophy, Annamalai University. Contributed several articles to several philosophical journals —Vedanta Kesari, Prabuddha Bharata, Journal of the Madras University, Journal of the Oriental Institute etc., As a Fulbright scholar he went to Stanford University in the year 1961-62.

Bharadwaj Nand Lal—He has been a school teacher who specialized in Yoga and Physical Culture. He has developed powers of mental healing and Extra Sensory Perception. Now he lives a retired life at Varanasi and practices Yoga.

Farau Alfred—an earlier co-worker of Prof. Alfred Adler in Vienna lives in New York as a practising psychoanalyst. He is Supervisor of the Alfred Adler Clinic. Director of Psychology and Associate Dean of the Alfred Adler Institute, and at the Faculty of the Training Institute of the National Psychological Association for Psychoanalysis. Author of *History of Depth Psycholagy*. which has been translated in German, French, Italian, Spanish, and Portugese. Member of the many learned societies. He is guest speaker at American Universities (Harvard, Cornell and Brandeis,

Fodor, Nandor—Practising Psychoanalyst. Licensed Psychologist and authority on Parapsychology. Author of several outstanding books on Psycho-analysis and Parapsychology and has contributed enormously to, literature on these subjects. Some of the important publications are *The Dictionary of Psychoanalysis, The Encyclopedia of Psychic Science. New Approaches to Dream Interpretation and The Haunted Mind.*

Mazumdar, J.C.—An Indian Aministrative Service (I. A. S.) officer working in the Ministry of Finance, Government of West Bengal. Interested in Philosophy. An old student of renowned Indian Philosopher Dr. D.M.Datt. Contributed several articles to many journals.

Mollenhauer, Bernard—American writer of repute. Life Fellow of International Institute of Arts and Letters, Switzerland.

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Nelson, John O.—Professor of Philosophy, University of Colorado, Educated at Princeton and Cornell Universities. Contributed several articles to various Journals *The Review of Metaphysics*, *Colorado Studies*, and *Philosophy Review* and *Darshana*: Book Under preparation *Moore's Philosophy*.

Noelle, Wilfried—Ph.D. (Tuebingen), Honorary Visiting Professor of the Birla Education Institutions, Pilani (Rajasthan), India.

Odajnyk Walter—Born in Czechoslovakia, graduated from the Hunter College, City of New York. Obtained Master's Degree from the University of California, Berkeley.

Powell, Robert—Dutch born British National. Industrial Chemist by profession. Author of '*Zen and Reality*' Delivered several lectures at Buddhist centres and at Cambridge University. Contributed several articles to different Buddhist Journals.

Richmond, Zoe (*Mrs.*)An eminent English Spiritual Writer and poet.

Stone, Vida Reed—An eminent American spiritual writer and poet. Contributed several articles to many International Journals. Author of several books. Famous works, include *Creative Living*, *Behold my Song*, *Letters to you*, *Winged Thoughts* etc.

Tipple, Esther Watson—Founder and Executive Director, Mercator Music Foundation, Inc., Rome, Georgia. Engaged in Research and contributed several articles.

Winthrop, Henry—An American Social Scientist of the College of Basic Studies, University of South Florida. Member of the Board of Editors of different American Journals. Regular Book-Review Editor of *Journal of Humanistic Psychology*,edit a regular section of the Journal of *Existential Psychiatry* and writer or regular section of the *Journal of Human Relations*.

Works of Dr. B. L. Atreya

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Managing Editor 'DARSHANA'
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ANNOUNCEMENT—

Dr. S. Radhakrishnan Souvenir Volume

(75 Essays in Honour of Dr. S. Radhakrishnan, Eminent World Philosopher and the President of Indian Republic)

We are pleased to announce that the Board of Editors of Darshana have decided to bring out a voluminous publication Dr. S. Radhakrishnan Souvenir Volume containing 75 scholarly articles of the eminent Philosophers, Psychologists, Sociologists and Research Experts of the World, on the eve of his completing 75 years. This will be of about 600 pages and will be priced Rs. 30/-, or Dollars 8·00 or Shillings 40. Since we are publishing a limited number of copies and there is much demand, so it would be better if you get your copy reserved at the earliest, to avoid disappointment. The book will be released in November 1963.

The following list will give an idea about the names of the eminent thinkers and their contributions:

1 S. P. Adinarayanan (Annamalai) The Happiest years of our life.
2 R. Assagioli (Italy) Psychosynthesis.
3 Albert E. Avey (Wooster) How Exact is our Knowledge of Early Greek Thought ?
4 A. J. Bahm (New Mexico) Radhakrishnan and America.
5 David Baumgardt (U.S.A.) The Nature of Mystical Experience According to Hildegard von Bingen (1098 to 1178).
6 C. K. Bliss (Australia) Life and Indian Thought.
7 Joseph H. Bunzel (Virginia) Immortality Through Art.
8 Blodwen Davies (Canada) Richard Maurice Bucke and the Sources of Genius.
9 Franklin H. Donnell, Jr. (Colorado) Other Minds & Images.
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11 D. Luthar Evans (Ohio) Methodologies of Control in Ideological Conflict.
12 A. C. Ewing (Cambridge) The Individual and the State.
13 Kurt Fantl (San Pedro) Extra Sensory Perception and Psychiaty.
14 A. Farau (U.S.A.) The Heritage of Alfred Adler.
15 James K. Feibleman (Tulane) Human Nature and Institutions.
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19 Charles Hartshorne (Texas) Negative Facts and Analogical Inference to "Other Mind".
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22 H.M. Jha (Patna) Paramārtha Darshana ; A revolutionary trend in Contemporary Indian Thought.
23 T. G. Kalghatgi (Karnatak) Synoptic Philosophy.
24 S. P. Kanal (Delhi) Naturalism in Recent Indian Philosophy.
25 Donald B. Kuspit (Pennsylvania) Is Existentialism a Psychology ?
26 Louis Lachance, O. P. (Montreal) Actualite de la Declaration des droits de l'homme.
27 G. R. Malkani (Inst. of Phil. Amalner) The Self as Intelligent Substance.
28 Y. Masih (Bihar) The Reality of God.
29 Cecil Miller (U.S.A.) Science and the Deocentric Predicament.
30 Charles A. Moore(Hawaii)The Spirituality of Western"Humanism".
31 Douglas N. Morgan (Texas) Painted Women.
32 H. Motoyama (Japan) Psychology of Religion.
33 F.J. Mott (Kent) The Nature and the Mechanisms of Mind.
34 Gustav E. Mueller(Oklahoma)Creation,Evolution and Emanation.
35 Prem Nath (Punjab) Philosophy and Social Change.
36 John O. Nelson (Colorado) A Re-Examination of Ethical Realism.
37 William D. Nietman (Pacific) Language and Ontology.
38 Troy Wilson Organ (Ohio) Radhakrishnan and Teleology.
39 Parsons, Howard L. (U.S.A.) Man East & West.
40 Oliver L. Reiser (Pittsburgh)An Archetype for a World Philosophy.
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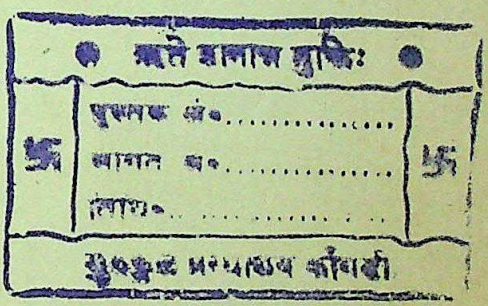
INTERNATIONAL QUARTERLY

OF

PHILOSOPHY, PSYCHOLOGY, PSYCHICAL RESEARCH, RELIGION, MYSTICISM & SOCIOLOGY

गुरुकुल कांगड़ी

MORADABAD (India)





Volume III October 1963 Number 4

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DEDICATION

THIS ISSUE OF "DARSHANA INTERNATIONAL" IS HUMBLY AND CORDIALLY DEDICATED TO PROF. *DR. JOSEPH BANKS RHINE*, AN AMERICAN SCHOLAR OF INTERNATIONAL REPUTE WHO HAS CONTRIBUTED ENORMOUSLY TO THE KNOWLEDGE OF THE DEPTHS OF HUMAN PERSONALITY, HAS BECOME A PIONEER IN THE FIELD OF PARAPSYCHOLOGY AND HAS DONE ADMIRABLE WORK IN THE FIELD OF LEARNING BY ESTABLISHING FIRST PARA-PSYCHOLOGY LABORATORY IN THE DUKE UNIVERSITY AND WHO HAS DECIDED TO DEDICATE HIS WHOLE LIFE FOR PARAPSYCHOLOGY, BY APPLYING THE METHODS OF SCIENCE AND REASON BOTH WITH THE CO-OPERATION OF PHYSICAL AND SOCIAL SCIENTISTS. DR. J. B. RHINE AND HIS CO-WORKERS AT DUKE UNIVERSITY INCLUDING HIS ILLUSTRIOUS WIFE DR. LOUISE RHINE DESERVE OUR APPRECIATION.

J. P. ATREYA
Managing Editor
'Darshana International'

BIOGRAPHICAL SKETCH

Joseph Banks Rhine was born on September 29, 1895. He got his Education at the College of Wooster in Ohio. He abondoned his course and the college and Joined Marine Corps and served for the duration of World War I.After the World War I, he married Louis Ella Weckesser a former classmate at the college of Wooster.Then both Mr. & Mrs.Rhine joined University of Chicago the Department of Botany and took up Ph.D. Degrees from there.

Their interest had been aroused at Chicaga in the early 20's in the field of psychical research. In 1926 they went to Harvard to study under Mc Dougall. (But he was on Leave) They worked with Dr. Walter Franklin Prince the then Research officer of Boston Society for Psychical Research, and likewise studied under Professeor Morton Prince of Harvard the distinguished psychiatrist.

By the fall of 1927 they went to Duke University to Study under Professor McDougall for psychical research and post-mortem survival. Here they under took a research program to bring the survival problem into its proper focus. Opposed to the spirit interpretation was the view that the medium herself might very well possess enough telepathic and related abilities to draw from living sources the information that purported to come from deceased personalities.

The next ten years were heavily concentrated, then, on the questions of telepathy and clairvoyance, of precognition and psychokinesis.

By 1934 the first book report was published under the title *Extra-Sensory Perception*. In 1937 researches were published in a book *'New Frontiers of the Mind.* In the same year *Journal of Parapsychology* was founded and Professor McDougall also joined in this undertaking. Author of several well-known books on Parapsychology.

In 1935 he established a laboratory called the Parapsychology Laboratory. Since 1950 he is working as director of this Laboratory, with a number of staff members to give full-time attention to parapsychology.On August 1,1962 he established the Foundation for Research on the nature of man, an organzation intended to be a world centre for the advancement of scholarly research on the nature of human personality.

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Editorial

HUMAN VARIABLES IN THE DESIGN OF NEW EQUIPMENT

TECHNICAL developments have today reached such a degree that a limitation in the yield of the man-machine system is imposed rather by the psycho-physiological possibilities of man than by the possibilities of the machine.

In order to permit future progress, it is necessary to co-ordinate the data arising out of different disciplines: physics, electronics, the physiology of the nervous system, experimental psychology.

Applications of these disciplines to practical problems have always been made. The problem, however, arises today in a completely new way: that is to say in terms of the **design of machines and instruments.**

The design of combat equipment should be closely linked to the bio-psychological characteristics of the operator. Ideally, equipment, (for instance aircraft) should be designed with the concept of **man** as the centre of the system and the **instruments** as **extensions of the nervous system of the operator.**

As long as operators are not given equipment designed along these lines, it will not be correct to attribute such an important part to **human failing** in, for example, aircraft accidents. If we provide man with badly designed equipment and if; in the encounter between man and machines, catastrophes occur, we must not blame the operator but the designer.

It has often been experienced—sometimes in a tragic way—that "machines do not fight alone". Radios do not hear, radars do not see, guns do not aim by themselves, cars do not drive themselves. Every effort should therefore be made **to improve operative conditions** in order to increase the efficacy and the safety of the system in question.

Certain general principles can already be outlined:

(a) designers should have a more thorough knowledge of human sensory and perceptive organs if sactisfactory information is to be supplied from signals and lights in the operation of equipment;

(b) the designer must not place unreasonable demands upon the operator as regards the physical responses involved in reacting or operating controls or levers, or in clearly differentiating between them;

(c) one should not overlook the possibility of **temporary lapses** due to fatigue, stress etc.

The **major areas of equipment design** in which biologists and engineers can collaborate most effectively are:

(a) layout of the "working space" for ease and efficiency of opera-

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tion (anthropometric studies are necessary and have already been carried out in certain countries in this respect);

(b) design and arrangement of visual displays in such a way that the information set out is not ambiguous and this not only under normal conditions but, and above all, in cases of emergency;

(c) protecting the operator in the event of catastrophe.

A certain number of **compromises** is nevertheless inevitable when new machines or instruments are constructed. In fact, it is not always possible to satisfy, simultaneously, all the general principles of correct design. Frequently, if we wish to satisfy the exigencies imposed by one principle, we are obliged to violate the exigencies imposed by another.

If we wise to achieve this compromise in the most effective way, we must in turn give priority to one at a time. For example:

(a) if **a long term operation** is involved, we must give the maximum importance to the **posture** (seating position) of the operator;

(b) if, on the contrary, the **speed** and **precision** of the manoeuvre to be accomplished are the most important factors, priority must be given to the **positioning of visual displays and of the controls;**

(c) when the operator has to cope with a **complicated group** of visual displays and controls, priority must be given to their **functional grouping** and their **codification** (standardisation, differentiation one from another).

To give another example: it is evidently desirable to have dials of optimum dimensions but space requirements of the necessity to simplify may make it desirable to construct them in a less than ideal way. Again, in this case, it will be necessary to select from amongst all the possible models **the least unsatisfactory one.**

We must carry on with experimental research up to the point where the recommendations we have to make can be accompanied by certain quantitative specifications. To insist that the controls must be "within reach" of the pilot is not sufficient; we must be able to indicate certain details, in such a way that the majority of pilots should be able to manoeuvre them correctly.

The most important criterion, in my opinion, for all that has a bearing on the application of our knowledge to the construction of machines, is **the efficacy of performance** on the part of the operator.

Many factors which determine, as a whole, this efficacy cannot be isolated one from the other for separate study. It is, however, always possible to carry out experiments by introducing **variants** (inspired by the study of human capabilities) and to establish in an objective way the operator's yield under the various experimental situations.

The best opportunities for applying our knowledge in the field of man-machine systems are to be found when the equipment is still at the

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design stage, namely:

(a) when one is still at the **design on paper** stage, a certain number of questions must be given preliminary consideration: the purpose of the equipment: type and function of each panel and each control; distance of the controls and panels from one another and distance of the operator; functional grouping etc.

(b) once the first development on paper has been made, the next step will be to construct an **experimental model**.At this stage, it will be possible to solve other equally important questions. If it is a question, for example, of a design for an aircraft cockpit, we have the possibility of using advanced models such as the **Universal Test Seat**, developed at the University of Michigan, or the **Beinfort Fixed Preflight Trainer** (the first model provides a large number of variations of the position of the operator, whereas the second offers us a fairly realistic model of cockpits in which position of the different component parts can be varied for experimental purposes.

The final testing of the equipment will be made:

(c) on **a prototype** of the equipment itself. These models must be sufficiently flexible to permit alternate designs (as realistic as possible)to be subjected to testing.

Finally, it would be advisable to obtain the opinions of experienced operators, by means of **technical questionnaires**, and on their preferences in the case of alternative solutions.

The problem of **design** and that of **utilisation** should, in my opinion be linked. When a group of designers has constructed certain equipment it has, by this very reason, acquired the capability to supervise most efficiently the **training programmes.**

Finally, experience of war has demonstrated **the importance of the acceptance** of new equipment on the part of personnel who have to use it. A new piece of equipment may be perfect from the point of view of construction but will be of little value if those who have to use it"reject"it.

The resons for this "rejection" can be varied: not feeling at ease with the new machines' prejudices deriving from previous training with other types of instruments, "rumours" of imaginary dangers etc...It is for this reason advisable to introduce **acceptance tests** (on the part of personnel) in the case of new equipment.

A final word on the **economic aspects** of the problem we are considering at our meeting. If certain modifications, which are theoretically possible or desirable, seem too expensive against the results obtained,one must not lose sight of the gains which are not always directly understood. For instance, how can one state, in figures,the price of fatigue, that of accidents avoided of that of absenteeism owing to illness?Putting aside all other considerations, economies achieved in the fields of health and of the avoidance of accidents are in themselves paying.

In any case,before embarking on the study of modifications of equipment, it is well to ask the opinion of an expert on the foreseeable advantages;the difficulty being not to **state the price** but to **evaluate the gain.**

G. MIGLIORINO

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AN APPEAL

Research Institute of Philosophy, Psychology & Psychical Research has been planned at a very beautiful and quiet place in the laps of Himalayas, namely at Kuthalgate on Dehradun Mussoorie Road. This place is 9·5 miles from Dehradun, 2·5 miles from Rajpur and 12·5 miles from Mussoorie. Its height is 3,333 ft. above sea level and the climate is congenial throughout the year. A large number of Professors Indian & Western, both retired and working have agreed to co-operate in the scheme.

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PSYCHOLOGY AND METAPHYSICS OF THE EXPERIENCE OF COMMUNION WITH GOD

JOSE A. FRÁNQUIZ

ACCORDING to Webster, "Mysticism is the doctrine of belief that direct knowledge of God or spiritual truth or ultimate reality, is attainable through immediate intuition, insight or illumination, and in a way, differing from ordinary sense perception or ratiocination.....Hence (it is another name for) vague speculation, vagary, belief without foundation." As rare synonyms of "mystical", Webster mentions the following: "Remote from ordinary human knowledge or comprehension,unintelligible, cryptic, enigmatic, obscure, ocult,cabalistic."[1] Logical positivism and most of the forms of naturalism would have called mysticism simply a pseudo-problem or an instance of nonsense. But our standard dictionary merely suggests the expressions "vague speculation," "vagary", and "belief without foundation."

It is not the purpose of the present paper to condemn or applaud the foregoing concepts of mysticism. Indeed our study will not be an investigation of mysticism *per se*. Nor will it be an inquiry into prayer. It will be simply a general consideration of some of the factors and circumstances attending those experiences which man has consistently called instances of communion with God. Our purpose, then, is to inquire into the "vagueness" of man's attempt to transcend himself. But such an inquiry would of necessity have to touch on the fields of mysticism, faith, worship and prayer. The general character of our topic, therefore, will permit us to move freely among these concepts, and dispense with an unnecessary exhaustive list of the recognized literature on the field.

At the outset, the very idea of communion with God seems to beg the question, and from a strictly rationalistic point of view probably it does; but were we to validate with nicest accuracy each one of our concepts, our discussion would not progress very far. Within the scope of our short paper we cannot undertake to prove the existence of God.God must be assumed. Any other approach would take us far off into the entanglements of theological dialectics. The following comment from the great English Idealist, Norman Kemp Smith, states our attitude succinctly: "It is no longer regarded as possible to demonstrate by dialectical argument the existence of God. It is recognized that the so-called proofs

1: Merriam-Webster, 'New International Dictionary' (2nd Edition. Unabridged, Vol. III. Spring-field, Mass.: G. & C, Merriam Company, Publishers, 1959), p. 1621.

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are at best merely outline indications of the various directions in which demonstrations are to be sought: It is in the highly specific facts of religious experience in the past and in the present, in their coordination with the other aspects of life, and through study of them in all the detail of their historical accompaniments, that the evidence...if adequate theoretical evidence there be...is alone to be found."[2] The British philosopher follows pretty closely the thought of Borden Parker Bowne who many years before, referring to the arguments for the existence of God, declared that "carefully considered (they) turn out to fall short of demonstration ...Matters of fact do not admit of demonstration in any case. Demonstration attaches only to the formal science like mathematics which deals with the relation of ideas. Whenever we come to consider concrete reality there is always an element of assumption in any so-called demonstration."[3] Our dynamic conception of reason or "coherence at work", however, liberates us from strict rationalism, and therefore, at least for the time being, we may safely overlook the apparent *petitio principii* implied in the title of this paper.

John Oman distinguishes between four types of knowing, namely: awareness, apprehension, comprehension and explanation. The difference and relationship between these types he illustrates as follows: "While walking in a dreamy mood along a country road, we may have a vivid sense of all that is about us, without attending to anything in particular. Our knowing is then a general field of awareness, including scent and scent and sound as well as sight. The more we are entirely in this state of awareness, the more all our senses are active, so that we may even have vague realization of the taste of the apples in the orchards and the coolness of the waters in the streams. Something in this field arouses particular attention, say an object moving towards us on the road. If it specially interests us, as, for example, by being unfamiliar, we concentrate attention on it to see exactly what it is, seeking to **apprehend** it as one object by what appears to be its more relevant and important details. Let us say that we apprehend it to be a man riding a bicycle. Then, supposing we have none of the information we afterwards learn to include under the name bicycle, but have everything to learn about it, we try, as it approaches, to **comprehend** it. This we do by considering the machine in relation to the man as a means of locomotion.....Finally, as it passes, we are faced by the problem that it seems to have no support from its breadth, yet keeps upright while travelling along a line. This singularity we try to **explain**: and we do it with such general principles as the scientific knowledge we happen to possess provides."[4]

2. Norman Kemp Smith, 'The Present Situation in Philosophy,' 'Philosophical Review, XXIX (January, 1920), p. 24.
3. Cp. Borden Parker Bowne,: 'Kant and Spencer' (Boston, Mass. Houghton Mifflin Co., 1912), p. 207.
4. John Oman, 'The Natural and the Supernatural' New York : The Macmillan Company, 1931), pp. 120-21.

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Oman would be the first to grant the interrelatedness of his four types of knowing. Indeed they interecoalesce and support each other,and belonging together their division should not be carried to far. Yet, they are sufficiently unique to be distinguished.

Applying Oman's criteria we may say that communion with God is a manner of **explanation.** But it is not scientific explanation. Much less is it the type of scientific explanation which consists in explaining away. It is a type of explanation to one's self which consists of the awareness of certainty. It is also a manner of **comprehending,** but its comprehension is not a matter of adding information and compiling data. It is not a procedure, but an attitude. Communion with God is also **apprehension,** but not the apprehension of a thing or an object. It is rather an apprehension of meaning, novelty and joy. It is an apprehension of self-discovery and self-experience. Communion with God is, finally, intensified **awareness,** but not awareness of mere concreteness. It is the awareness of ultimacy and the experience of an objective presence. In terms of our study, explanation clarifies comprehension; comprehension strengthens apprehension; and apprehension anticipates and leads to ultimate awareness. **Awareness,** on the other hand, animates apprehension;**apprehension** illuminates comprehension; and **comprehension** unfolds in **explaining.** In this sense, awareness of the ultimate is dialectical.It is a gradual growth that ascends in search of ever higher syntheses and climbs to the loftiest and most inclusive universal; but always returns to the point of departure, to specificity and particularity. If mystical experience evidences itself by any distinctive quality, it is by the quality of life to which the experience leads. The mystic's euphoric feeling and awareness of ultimacy is never a mountain-top experience only. Indeed the experience itself, whether it is a feeling or a vision or an ecstasy or a mood, does not last for more than two hours.[5] What is peculiar about the experience is that it enriches life, charging it with a sense of vision and mission.

Mysticism in itself not being the central object of our study, it will be unnecessary for us to digress into the psychology and physiology of mystical experience. James H.Leuba's famous observation that mystical ecstasy can be induced by the use of certain drugs,[6] would be, therefore, irrelevant to our problem. Leuba certainly knows what he is talking about, but inasmuch as by religion he seems to mean simply what we call superficial and crude evangelism,we can dispense with his psychology and philosophically realize that the origin or even the history of an experience has nothing to do with its logical validity. This would also apply to cases of self-hypnosis, glossolalia, hallucinations and the other religious phenomena with hysteric foundation. The type of religious experience a person has, depends primarily upon what the person is. The

5. William James. 'The Varieties of Religious Experience (New York : Longmans, Green and Co., 1902) p. 38.
6. James H. Leuba, 'The Psychology of Religious Mysticism' (New York:Harcourt, Brace & Co., 1925), Chap. ii. Also cp. James, 'op. cit.,' pp. 386-387, 390-392.

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psychological make-up of the individual determines to a great extent not only the manner in which he experiences the religious, but also the manner in which he experiences anything in life. No other psychologist has established this fact so fruitfully and constructively as Gordon W. Allport in his personalistic psychology,[7] although long before Allport, William James had suggested the same insight by his well known classification of individuals as **tender-minded** and **tough-minded.** The tough-minded or healthy-minded soul experiences religion without a conversion crisis, while the tender-minded or sick soul needs a radical crisis to achieve integration and peace of mind.[8] Even before William James, George A. Coe wrote about the influence of individual temperament and of social factors on religious experience.

This situation sheds light upon what, in the judgment of Bowne, constitutes the three types of Christian discipleship. Obedience, we are told, is the supreme test of religion. The Lord requires of us simply the filial spirit issuing in lives of obedience to his commandments (I John 2:3-4), This is the ethical type of discipleship. For it religion is righteousness. It is the moral law conceived as the will of God. Communion with the eternal is not a matter of "fervors, deep meditations or flaming raptures, but of loyalty to righteousness." "Communion with God is moral goodness, and this is the religion of most thoughtful young people of wholesome moral training and habits. Indeed this is also the religion of the Synoptic Gospels and of St. James epistle...."[9]

There are other persons, however, Bowne observes, to whom this phase of Christian doctrine is far from satisfactory. For these, the law is more than a rule to be fulfilled. It is a spirit which can never be exhausted in man's experience of righteousness. These individuals have to be taken out of themselves and taught that they are saved by grace through faith. But such persons are not immoral. Frequently they are even more moral than any other type; simply they can never rest in the satisfying contemplation of their behavior.

There is, however, a deeper religious need which neither of the preceding types of discipleship seems to satisfy. Man experiences a yearning for oneness and fellowship with the eternal. And nothing whatsoever can take its place. But there's the rub ! Bowne alludes to this type of experience in a casual fashion, almost disparagingly. It is true that he recognizes the foregoing three types of discipleship, and observes that the three are present in the New Testament and in the history of the church. Indeed we are told that they are implicit in the religious nature itself,and

7. Gordon W. Allport, 'Personality : A Psychological Interpretation' (New York : Henry Holt & Co., 1937); 'The Individual and His Religion' (New York : The Macmillan Co., 1950); The Roots of Religion' (New York : National Council of the Protestant Episcopal Church, 1944).
8. James, 'op. cit.,' pp. 78-165.
9. Borden Parker Bowen, 'The Essence of Religion' (Boston & New York : Houghton mifflin Co., 1910). pp. 229-231.
10, IBID., pp. 231-232.

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that they would find expression in every Christian, if men were perfect. "...But all these types have to be tested by righteousness. Otherwise salvation by faith may easily pass into immorality, and fervor may issue in practical indifference to the work of the world. The only way in which we can escape these dangers is by beginning with the moral type and keeping the commandments of God. There is no other requirement and no other may be imposed."[10]

Fundamentally there is no major disagreement between our position and that of Borden Parker Bowne. Morality and religion cannot be divorced. But there is always the danger of anthropocentrism. Humanism and most of the other forms of naturalism are as much concerned for the moral improvement of the human race as Bowne or any other personalist ever was. Instead of religious experience being grounded on man's moral nature and needs, we find the roots of morality historically and metaphysically grounded in the religious nature of man. A morality imported externally does not necessarily flower out into religion from within; but when the inner life is genuinely religious it unfolds in moral behavior. Indeed the injunction of both the Old and the New Testaments is not so much to be good as to be holy: These few words might easily spell the difference between religion and secularism, and also between a spiritualistic metaphysics and a naturalistic outlook.

Rather than undermine with Bowne, therefore, the importance of his third type of discipleship, from our point of view we stress its primacy. If God is the ultimately real, thirst for fellowship with Him here and now in the manner of the vine and the branches is itself the mature religious sentiment, regardless of how we phrase the experience of it. Spinoza calls it intellectual love of God; Schleiermacher, the sense of absolute dependence on God; Rudolf Otto, *mysterium tremendum luminosum et fascinosum* and even Jonn Dewey speaks of "the personal experience of totality...sublime joy of emancipation in whose presence one is immortal within the life of the universal."[11] The manner in which the experience of the religious sentiment is phrased is inconsequential. Irrelevant may also be the hysterical exaggerations into which the sentiment may finally degenerate. The ecstasies of St. Teresa, the visions of Ignace of Loyola, the hallucinations of St. John of the Cross, the frightful experience of Boehme, the burning bush of Moses, the call of Isaiah, Paul's event on the road to Damascus, and so many others, would naturally depend upon the psychological constitution of the persons experiencing the mystical rapture and also upon the conditions, traditions, and religious expectations of society at the time those experiences took place. These external forms and manifestations are matters of abnormal psychology and psychiatry. What is of metaphysical relevance is that man

10. Ibid., pp. 231-232.
11. John Dewey, 'Human Nature and Conduct.' An Introduction to Social Psychology. (New York : Henry Holt and Company, 1922), pp. 330-332.

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longs for totality, that in some way he experiences the satisfaction of this need, and once having his need satisfied, his experience unfolds in constructive social action. The religious sentiment, therefore, at least in the foregoing sense. is akin to the type of knowing which John Oman calls Awareness.[12]

Most of our discussion this far has centered, however, upon the problematics of the religious sentiment and its conditions. But communion with God is neither a sentiment nor a condition. It is an act: indeed, the most important act of man. It is life. If there is no God, communion is a misnomer. But if there is God, there is no substitute for the value of communion with Him. Communion, however, involves two parties. It is a dialogue, a meeting, an encounter.[13] It is an "I-Thou" relationship, to use Buber's phrase, a subject-object situation. Only persons commune and communicate. Communion with God presupposes, therefore, both the personality of man and the personality of God. Man does not commune with process or evolution or atomic energy. He communes with God. But if God does not commune with man. there is no communion either. Communion, therefore, rests upon God's revelation and man's transcendence. Failure to emphasize the revelation of God will make of religious experience a case of wishful thinking, a mechanism of projection. But failure to emphasize man's transcendence will cancel the human spirit, for, as Francisco Romero has admirably shown,[14] transcendence is the essence of spirituality.

The difficulties involved in the problematics of revelation are too numerous and complex; but revelation as a fact must be faced, lest by shunning it we render communion with God an inarticulate and meaningless expression. For the purpose of our study let us limit our inquiry to two related questions: in revelation, what is it that God reveals, and how does revelation take place ? An answer to these questions will shed light upon the objective aspect of the subject-object situation which constitutes the I-Thou event of communion with God. Concerning revelation, the believer thinks at once of sacred writings, each religion considering its own sacred books more meaningful and inspired than the literature of the other religions. This is what Professor Brightman calls the dogmatic conception of revelation, which makes it consist of "the communication of supernatural and infallible truths or dogmas...thought of as propositions which the natural reason could never arrive at by reflection on ordinary experience."[15] But even within the various religious

12. Supra.

13. Cp. Martin Buber, 'I and Thou' (New York : Charles Scribner's Sons, 1937); 'Eclipse of God' (New York : Harper and Brothers, Publishers, 1952).

14. Francisco Romero. 'Filosofia de la Persona' (Buenos Aires : Talleres Graficos Radio Popular, 1938); Teoria del Hombre' (Buenos Aires : Editorial Losada. 1952). Also. Jose A. Franquiz,'Personalistic Structuralism of Francisco Romero' 'Luminar,' II (Spring, 1940), pp. 252-275; and Jose A. Franquiz, 'Personalism in Latin America,' 'The Philosophical Forum', XII (1954), pp. 77-78.

15. Edgar S. Brightman. 'Philosophy of Religion' (New York : Prentice Hall Inc., 1940), p. 175.

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bodies themselves there are wide differences of opinion as to the manner in which the scriptures are to be understood and accepted. If our inquiry is not to end in a chaotic religious relativism, we must look at all sacred writings from the point of view of the spiritual function they perform. As such, all sacred writings, the *Bible, Koran, Tao Teh King, The Book of the Dead,* and many others, have in common man's need and longing for the Eternal and the purpose of bringing him nearer to God. This is the revelation. Professor Brightman's insight helps us also concerning the second question as to the manner in which revelation takes place. He suggests what he calls the teleological or dynamic theory of revelation According to this view, "the essence of revelation is not the communication of infallible truths; instead of it is the guidance of human life to higher levels by divine power.....The divine purpose so acts in human history that men are given impulses which lead them to move toward God...This dynamic view makes revelation an experience of the power and active purpose of God rather than an experience of God's knowledge.....Experience on this view, includes many factors which are revelatory in the sense of being purposed by God in order to lead men to higher values; yet all these factors must be interpreted by reason, and the interpretation is human thinking, not divine dogma."[16]

In our discussion of the religious sentiment[17] we anticipated most of what we could call the subjective side of the subject-object situation which constitutes the I-Thou event of communion between man and the eternal; but our stress lay on the sentiment and not on the individual. The sentiment by itself, however, apart from the tensional life of the individual is an abstraction. The subject must be treated in terms of concrete personality, for without personality at both ends there is no communion.

Commenting approvingly on Schleiermacher's concept of absolute dependence as "the most exact and profound explanation" of religious experience, Miguel de Unamuno concludes that the concept of the divine emerged in man by way of psychological projection. The concept originated in feeling.[18] This statement antedates, of course, the time of Freud, and its meaning must not be confused, with the Freudian Fatherhood complex,""for Unamuno is not doing away with God. He is primarily concerned with the manner in which men come to hunger for God and experience His reality. But in his study, Unamuno prepares the way for a great deal of modern psychology of religion.

In a recent paper Paul E. Johnson observes that "our effort to communicate (represents) a precarious hopeful attempt to overcome our lonely isolation by completing even for a moment a circuit of wholeness

16. Ibid., p. 176.
17. Supra.
18. Miguel de Unamuna, 'From God to God,' 'Sentimiento Tragico de la Vida', (Madrid : Renacimiento, S, A., 1914), pp. 156-184.

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..."[19]It is true that Johnson is referring here not to cosmic totality,but to the social wholeness" in which we join our hidden differences in a common experience of understanding."But is it not true than man is also a lonesome individual in the cosmos?He may not feel his universal loneliness all the time,but in the presence of death and suffering,in his realization of helplessness and impotence,he ponders and wonders.Might this not be what Schopenhauer meant when he claimed that had it not been for death and suffering there would be no philosophy when plato affirmed that philosophy begins in wonder, probably he also was referring to man's sense of ultimate despair. Against the backgrouud of the cosmos, man is a lonely individual,and religion is the consolation that wells up from the core of his being when his heart bursts in his aloneness.We can sympathetically understand Unamuno, therefore, when he insists that if there is not a God we must make one. Two profound utterances of Whitehead illumine our thought in this connection:"Religion is what man does with his solitariness,"and also,"Religion is the passage from God the void to God the enemy and from Him to God the companion." Somewhat differently but with a tint of the paradoxical,Hocking expresses this same existential imperative of the divine when he asserts that because the world is, God is: and because the world is not. God is.[20] There is in man, then, a yearning for what John Dewey called "personal freedom and peace of the individual within the harmony of infinite totality."[21]

It is this yearning for totality, or "basic need for relatedness" as Johnson calls it,that motivates the effort to communicate and commune. With the exception of the extreme pluralistic psychologists like James, Dunlap, Angyal. McDougall, and Murray,who deny uniqueness and universality to this or any other form of religious sentiment, most modern psychologists and philosophers prefer to establish specific norms for the religious emotion. Bowne bases it on obedience to the commandments of God; Barth and his followers, on direct revelation"from above;" Wobbermin grounds it on the experience of longing and the need for security; Rudolph Otto, on the numinous, or feeling of creaturehood; Romero, on transcendence; Heidegger and his followers, on concern and dread; Knudson, Troeltsch and other apriorists, on man's native capacity for religious experience; and Gordon W. Allport, on a type of functional autonomy of motives which regardless of the origin becomes like all master sentiments, well differentiated, dynamic, consistently directive, comprehensive and harmonious."[22]

Gathering now together to fruits of our investigation we find by

19. Paul E, Johnson, 'How Do We Communicate ?' (Unpublished paper read at Bryn Mawr College, Dec. 27, 1951); cf. also Paul E. Johnson, 'Psychology of Religion' (Nashville, Tenn.: Abingdon Press. 1945). Chaps. ii, v. vi. vii.
20. William Ernest Hocking, 'The Meaning of God in Human Experience' (New Haven : Yale University Press, 1912). p. 312.
21. John Dewey, 'loc. cit'
22. Gordon W. Allport, 'The Individual and His Religion,' pp. 57-74; 'Personality A Psychological Interpretation', pp. 213-231; 'The Roots of Religion,'pp. 3-30.

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way of summary that communion with God belongs in the field of mystical experience, and mysticism, like all religious experience, contains a peripheral fringe of abnormality as well as a healthy, vigorous center of genuine penetrating insight. Whether on the fringe or in the center, the quality of religious experience depends upon the maturity and psychological make-up of the individual. The test of the genuineness of religious experience, regardless how mystical, is the character of social action to which it leads. Not only different individuals may have different types of religious awareness, but also an individual himself may have different types of religious experience.

In our paper we have treated also the uniqueness of the religious sentiments as a basis of the religious life, and finally we proceeded to a separate consideration of the object and the subject of the experience in communion. The object, God, provided us with a **beyond.** The subject, man, provided us with a **within.** Borrowing the joyful expression of Rufus Jones and applying it to our investigation, we find that communion with God is the experience of **a beyond that is within,** but not to the extent of either an epistemic or an ontological sameness.[23] It is a union, not a unity; a fellowship, not an identity. It is a meeting which begins with dialogue and culminates in partnership; a trembling soul fearfully trying to say, "Thou madest me for thyself, and my heart is restless until it finds repose in Thee;" and Love eternal whispering quietly. "Thou wouldst not seek me if thou hadst not already found me."

23. For a lucid discussion of this point, cp. Albert C. Knudson, 'The Validity of Religious Experience' (New York : The Abingdon Press, 1937), Chap. ii; also, Edgar S. Brightman, 'op. cit.,' pp. 168-171.

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AESTHETIC VALUES AND THE SOCIAL ORDER

RALPH J. HALLMAN

MOST of the problems in aesthetics remain open-ended and controversial. Little agreement prevails regarding even the nature of aesthetic values. Hence, a short discussion which outlines the responsibilities higher education in "helping students develop a sense of aesthetic values and appreciations and relate them to life as a whole" will need to be tentative and speculative. Instead of offering a solution to any specific issue in this field, I propose that we consider more carefully the phrase "life as a whole" as it becomes involved in aesthetics. Let us assume that culture is undergoing transformation in some very fundamental ways and that society seems to be vulnerable to some degree of re-organization. I am suggesting in this paper that higher education must assume some responsibility for an aesthetic re-ordering of cultural forms. My remarks will have a psychoanalytic orientation.

Let me at the outset propose one responsibility which higher education may assume in this connection : it is that the sciences, particularly such behavioral sciences as psychology and anthropology, accept the general problem of value as a legitimate area of research and even experimental investigation. Traditionally, aesthetic values have been discussed in terms of paradox, of poetry and symbolism. Because these values have been notoriously elusive, writers in the field have had to speak of purposiveness without purpose, lawfulness without law, and subjectivity which seems nevertheless objective; to describe beauty as truth and truth as beauty; to explain creativity as the mysterious output of some divine frenzy. I do not wish to argue here that such statements are not true; I only make the suggestion that science can bring rigor and clarity to the problem of value.

My comments then will describe a general theory of culture and will be organized around the following four propositions : (1) that civilized man burdens himself with an unconscious fear of history and consistently seeks to abolish history and culture; (2) that this discomfiture and restlessness as an historical creature equates with neuroticism, and that the neurosis results from the repressions which cultural forms impose upon the individual's demand for immediate gratification of impulses; (3) that aesthetic values owe their special quality to their origin in the primary energy of desire, as desire is transformed into symbols acceptable to the culture; and (4) that the aesthetic experience, grounded in the pleasure principle, offers the possibility of orderliness and stability which culture requires but does so without repression and hence without neurosis.

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Art permits the free expression without the accompanying threat of the pleasure principle to an established order.

The first of these theories has been developed by Jung and Eliade; the second and third are recognized as classical Freudianism; the fourth proposition appears in the writings of Fromm and Marcuse. The convergence of these ideas to form the thesis of this paper is my own responsiblity.

Our first proposition refers to the condition of man and asserts that man refuses to accept himself as a creature of history, that his Faustian dissatisfaction forces him to search for the eternal as against the temporal, the sacred against the profane. He has expressed his refusal to face the terror and anxiety of historicity through at least three escape mechanisms : (1) his anticipation of an occasion when historical time will come to an end and human culture abolished, as in the Judaeo-Christian theory of the Second Coming or in the Marxian hope for a classless society; (2) his return to those primordial conditions which were before time was; and (3) the submersion of his historical individuality within a paradigmatic, ritual form of behaviour. These revolts against concrete, historical time occur under a variety of symbols : the ceaseless repetition of archetypal calendar events; the imitation of acts of God; the concept of world centers; celestial models of cities and temples; marriage, building and agricultural rites; ritual combat, bull fights, jousts, tournaments; the return to the New Year, turning over a new leaf; periodic purgation, fasting, and confession; scapegoat festivals, consecration of new harvests, Mardi Gras; initiation rites, and curative rituals. These examples of behavior take away from suffering its finality, and from guilt, its permanent attachment to individuality. If culture can come to an end, man can suffer and tolerate his condition.

Our second proposition borrows from psychoanalytic theory and states that man's ceaseless unrest reveals a more fundamental condition of neurosis, and that indeed neurosis itself is the basis of culture. Freud's CIVILIZATION AND ITS DISCONTENTS develops this theme at some length, and it occurs in Christian philosophy as man's originally depraved state which, as Niebuhr for example believes, accounts both for the force which propels history forward and also for the freedom which man experiences in his sinful behavior and his artistic creative activities.

Civilization, and the history of civilization, grows and establishes itself upon neurosis or depravity. Culture comes into being as instinctual urges for gratification are repressed, postponed, sublimated and subjected to the reality principle. The suffering occasioned by repression builds itself into neurosis, for the unconscious level of mind will not permit the wishes to go unfulfilled and will therefore insist upon substitute gratifications. These substitute forms of behaviour constitute culture; they represent the secondary rewards which emerge when impulses for gratification become deflected from their immediate goal of sexuality. Such

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impulses require deflection, for their gratification would destroy civilization, but to inhibit them to the extent that gratification gives way to delay, pleasure to toil, and receptiveness to production, then the individuals who create do so as neurotics.

As with the doctrine of original sin in religious theory, neurosis propels history forward. The pleasure principle still reigns supreme and does not abate under inhibition. The state of affairs called the future is invented as the possibility for fulfilling wishes, and historical time itself comes into being as we launch out into the future in search of fulfillment. But what we are searching for is precisely the past with all of its infantilisms and guilts which our neurosis has generated. Hope for future satisfaction signifies fixations to the past; guilts place us in bondage to the past; and thus history moves forward into the future on the basis of servitude to the past. Of all creatures, only man has a history; only man can be neurotic, for only man experiences desire which remain unsatisfied even through cultural expressions. These repressed, unsatisfied wishes produce and sustain history.

Our third proposition follows from the second, which, as we saw, asserts the connection between Faustian restlessness and neuroticism; the third one points to the connection between neuroticism and aesthetics. Civilized man remains unconscious of his real desires, for his conscious transactions with reality have inhibited their expression and culture can never satisfy them. These repressed desires still furnish the energy of personality; under the label of the pleasure principle they drive the human organism; they are the desires of complete freedom, of sheer pleasure, of spontaneity, of full indulgence, of play. They provide visions of utopias, finalities, omnipotencies.

According to Freud (and other psychoanalysts), they also provide both the dynamics and the content of day dreams, of phantasies, and for our purposes of art. They account for the free, spontaneous play of children and make it difficult for the child to distinguish between the make-believe world of his unconscious wishes and the real world which consciousness would divide off from him. The creative artist does the same thing as a child at play : he creates a world of fantasy, and then he takes it very seriously.

Fantasy, and art, are then the last strongholds of the pleasure principle against the dominating forces of culture. Because they express impulses which are not permitted by society, because they may be humiliating, archaic, and elemental they are obstinately opposed by the reality principle as disruptive and hostile. But being themselves energized, they create tensions which demand release, even though their gratification, as we have noted, makes civilization impossible. Hence, they must seek out and imbed themselves in some symbol powerful enough to contain them but stable enough to be accepted by a social order.

The creator of the symbol experiences pleasure, for his psychic ten-

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sion has been discharged. The members of society feel pleasure too because they have been put in the position of enjoying their own unconscious wishes apart from any sense of shame or reproach and without endangering the fixed relationships which bind the society together.To be sure, this position is one of disguise, of stylization, of artistic elaboration; but these techniques employed by the artist only enhance the original expression of pleasure by providing for formal, aesthetic levels of enjoyment. These latter pleasures enhance the quality of enjoyment because they not only provide for the gratification of unconscious desires but because, being transformed by a design recognized by the culture as worthy, they come to express the ideals of that culture. In short, the artist has performed the mysterious, paradoxical act : he has transformed unconscious, individual wishes into universally accepted and consciously communicative symbols. Psychologically, energy previously attached to desire has been captured by consciousness and channeled into artistic techniques. For the purposes of this paper, this means that both freedom and culture are possible, that purposiveness without purpose may be meaningful, and lawfulness without law.

This brings us to our fourth proposition : it is possible at least to **imagine** a society which is built and sustained by aesthetic values, society which is non-repressive and therefore non-neurotic. If the vision is remote, the reality of the alternative is close at hand, namely the condition of man in which one of every ten members of society will require psychiatric help for his neurosis. This is the society in which the work which builds civilization involves the repressive utilization of man's creative energies, the society in which economic production sublimates these energies and becomes the condition under which culture can exist in the first place. The problem remains: how to retain civilization and freedom as well, how to experience pleasure and still engage in hard work.

Our thesis is that through artistic activity man can have both autonomy and culture, pleasure and toil; for it pursues aims which do not repress and therefore which do not alienate. Just as in poetry, where the free play of desire dominates the conceptual tendencies of language, so in art man's impulse for free expression takes precedence over the demands of want and need, which are strictly economic. Because the art object exhibits orderliness without culture domination, it uncouples itself from the enchaining bonds of the marketplace and dissociates itself from any purposiveness other than its own free expression. The work which is expended upon art remains in the category of play,for it submits only to its own lawfulness. But this kind of work endangers the social order, for it bakes no bread and builds no bridges in the sense that these activities symbolize the solution to the scarcity problem. The pressures of economic need require a stable social order,and requires that men engage in disagreeable toil as the only long range means for meeting these needs. Now,may we not dream that automation and electronics can bring about

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the miracle ? May we not hope that these marvels can supply a steady flow of economic goods and that the taint of original sin which condemmed Adam to work by the sweat of his brow and hence to submit his own self-creation to the dominating forces of fixed order be purged by that very power, intelligence, which imposed this condition upon him in the first place ?

This kind of social order would be non-repressive; it could produce individuals who had the freedom to fulfill themselves uninhibited by the coercive ideal of hard work for the sake of hard work. This ideal would give way to the possibility of man's fulfilling himself through vocation in which he established his identity through what he does. Vocation becomes the means for achieving selfhood, not only for providing bread. Art appears to offer the only means whereby this ideal can be realized, for it alone can create a universal order which is beauty, and accept a form of work which is really play. It alone can allow free reign to the pleasure principle without exploding civilization; it can provide an order which is sensuous rather than an order of coercive control; it can permit repression without neurosis, production apart from commodity, autonomy without chaos.

A society organized in accordance with aesthetic principles may be visionary, but not impossible. Already some laborers in this country are on a twenty-five hour work week; they still have one hundred and forty-three hours each week to live. What will they do during their ninety or more waking hours, and how will they do it ? What will they do when automation allows the reduction of the work week to ten hours, or to five ? It is at least conceivable that the repressive force of the economy will be eased. To any extent that this occurs, the structure of civilization itself will be affected. It is my view that a major responsibility which higher education must face during the coming decades, or perhaps centuries, is the directing of these fundamental changes in our culture, in effect, the designing of a society which will function on the basis of aesthetic principles.

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KRISHNAJI, THE MAN AND HIS TEACHING

AN APPRECIATION

ROBERT POWELL

IT seems to me that we cannot know the man if we do not understand his teaching. Krishnaji—as some of us affectionately call Krishnamurti—talks about life seen and experienced comprehensively, not according to any particular view-point or school of thought, but completely afresh, free from the dead ashes of yesterday. It is therefore really a misnomer to talk of a "teaching" for this word implies something static: some information, a set of rules, which is to be applied to obtain a certain result. His is the very Voice of Life itself, undivided within itself, flowing eternally.

Most people will only take note of Krishnaji's teaching (for lack of a better word, we shall go on using it) after knowing who he is, what his qualifications are, etc., because they want a guarantee that they are not wasting their time. It is this very urge to be certain, flowing from insecurity, that prevents the state of listening, or undivided attention, which is so essential for a proper understanding.

In this article, which aims to introduce the reader briefly to the work of J. Krishnamurti, the writer mainly concentrates on discussing the obstacles that frequently present themselves to newcomers. He hopes this may serve some purpose and considers this certainly more useful than any formal explanation of the teaching.

The commonest approach one finds people have to Krishnaji is to look upon him as the Teacher, who through his Teaching is going to give them something. It is this very attitude which Krishnaji exposes again and again as false; often as bluntly as in the following words: "I have nothing to offer you." If there were only an elementary understanding of the teaching such an attitude would not exist, for the very essence of what Krishnaji tries to convey to us is the absolute necessity for standing on one's own feet; and until we do this nothing will be of any avail. Physically we are obviously dependent upon one another—and nothing is going to change this—but psychologically to depend upon another for one's happiness means that one will always remain a psychological cripple.

It seems to me that the main reason for this futile approach is a failure to understand the right significance of "knowledge". When we go to a *guru* we have the mistaken idea that there is somebody who "knows" who can tell us how to live. How naive! We do not yet see that nobody knows, for the simple reason that in the spiritual life knowledge counts

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for nothing. No information, no blue-print for living happily and sensibly exists; life cannot be imprisoned within a formula, and that is the beauty of it. The only thing that counts is "being", and being is always fluid and never fixed; it is the Unknown, and can therefore never be reduced to an extrapolation of the known, which is an abstraction, a static picture of the past. The trouble is that we are so mesmerised by words that we think the known and the Unknown are a pair of opposites; we do not realize that what lies beyond these words is not just the usual antithesis, but that they represent dimensions of reality, which are so utterly different, that they cannot reasonably be expressed in symbols which normally refer to the one dimension only.

Another common misapprehension concerning Krishnaji is that his teaching consists of ideas. If they were ideas then his teaching would be a conventional one, consisting of a body of theories, either speculative or doctrinaire. But it is nothing of the sort. Ideas, concepts, are bundles of thought orientated within a certain neat fashion which we call "consistent" or "logical". These concepts can in turn be bundled together in a neat and more or less elegant fashion, in which case we have a "theory" or "philosophy". But concept or philosophy, both are woven of the texture of thought; and can thought ever liberate us ?

In our ignorant state we ever go from thought to thought, and all our misery (psychologically) exists within thought. Thought can be painful or pleasant, depressing or hopeful, which is the play of the opposites, ever changing, ever looking to the future, and thereby building the whole illusory world of the mind with its conscious and subsonscious layers—according to whether its constructs are recent or ancient acceptable or inacceptable to the social climate.

There is no limit to the ingenuity and grandeur of the conceptual constructions the mind builds for its own gratification and security; they appear so plausible as to give an impression of truth—and so we get caught, for we always underestimate the power of the mind to create its own illusions. After all, we have only got to look at dreams to see the dramatic capacity of mind. So in this web of unreality, which is of the mind's own making, we are imprisoned.

The mechanism of thought is that it operates by association, i.e., one thought leading to another—and whether this sequence is logical or illogical, that is beside the point. In other words, we are being thought, rather than producing "our" thought. Because of its determined nature thought can only lead to more thought, but can never reach out to what lies beyond thought; therefore, idea can never liberate. We may say that suffering is thought, and that liberation is freedom from thought, although not its suppression or the escape from it. Or, in different words: when suffering, we are the tools of thought; when free from suffering thoughts are the tools of Reality, and such thoughts are in the service of Love rather than in the service of the thinker.

So if for lack of a better word we talk, in slip-shod manner, of

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Krishnaji's "ideas",we must be aware that they are not"ideas"in the true sense of the word,but psychological facts presented to us in a way which is most likely to awaken us to their truth.Therefore,it is not a matter of agreeing or disagreeing with them—as we do in the case of opinions and theories—but merely to see or not to see their verity, and it is only the Truth that will set us free. The best way to see their truth is to look at these facts,as they are actually manifesting themselves from moment to moment, in the mechanism of our thinking; i.e., applied inwardly, and not to project them outwardly, either on others or on society as a whole. When we know ourselves we shall know the world, but not the other way round.

Contrary to popular opinion, for seeing the truth of what Krishnaji talks about no effort or favourable spiritual predisposition (if there be such a thing) is necessary. Here, we are all on equal ground, regardless of our intellectual or professional attainments, regardless also of our social positions or the colour of our skins.The curious thing, the wonder of it all, is that only one thing is necessary, although this is absolutely essential, for our benefiting from the talks. And that is that we **listen**—such as we have never listened before, with all our heart and soul.

This is the peculiar quality which the Word of Truth has, when spoken by the embodiment of Truth, that the very listening to it has a liberating effect. It is the immediate impact of the Word and the Man that matters, and this is not to be obtained by making notes and taking them home for study, as though it were a college lecture. Also, listening in the required manner presupposes a state of pure listening in which there is no "listener", with his knowledge about the speaker and the spoken. Thus, in such listening there must be no prior knowledge of the speaker as the embodiment of Truth—for this very knowledge would influence us,e.g.,by accepting him as our Authority or as a reaction against him, and thus prevent the state of listening.Many are lured to attend Krishnaji's Talks on account of his reputation as an extraordinary man, the supreme teacher,etc.This so easily gives rise to an attitude of exaggerated reverence,the worshipping of the teacher,which goes at the expense of, and actually runs counter to, the teaching. After all, the "man",however extraordinary, is not of greatest importance to us, only his teaching is; as Krishnaji himself once remarked "the teacher is not important, throw him overboard".

Another, all-too-common view of Krishnaji's teaching is that it deals with "problems". At the Saanen Talks in 1962 a lady assured me that she must under no circumstances miss the next talk for she felt certain that on that occasion her own particular problem would be dealt with. Certainly, Krishnaji deals with human problems, and a great variety of them such as envy, fear, hatred, love and so on; but does he solve them ?

That we have problems in our lives is an undeniable fact, and that

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we cannot just leave and ignore them, is only too obvious. Yet, at the same time it can be observed that no sooner we have solved one problem than another problem crops up—and so we are never free from problems. In other words,to continue "solving" individual problems one after another—which also means, of course, to be in a state of continual conflict —does not have any better result than to ignore them. In the former case, it is like a festering sore, but nicely bandaged, which all the time undermines our health and saps our energy. In the latter case, it is like the symptomatic treatment of a disease; no sooner have we got rid of one symptom than another becomes manifest. We have not cured the disease at all but only varied its manifestations.

It is for this reason that Krishnaji throws back the problem at us without solving them; he refuses to be a glorified Dorothy Dix. He is not interested in the problems as such, but only uses them to get at the underlying state of malaise which has thrown them up. Thus it may be said that problems are only incidental in Krishnaji's teaching, since in the spiritual life the mere solution of a problem is, in the ultimate, its avoidance. So, although Krishnaji appears to discuss just about everything under the sun, he is really talking all the time about the same thing; each time in a different way perhaps, but always pointing to that intangible something beyond the words, which is the only thing that matters in the world.

Finally, in a chapter that discusses some of the difficulties which confront the person anxious to understand Krishnaji, something may be usefully said about his medium of exprsssion, the words he is using.

The extraordinary thing about words is that, applied to things spiritual, they distort and often create, on superficial examination, the very opposite impression of what was intended before the idea was verbalized. So we hear, for example, people talk only too often about Krishnaji's "teachnique of setting the mind at peace".Thus a description of certain aspects of his teaching has apparently created the impression of a "technique", a practice to be followed, which is, indeed, the very opposite of what was endeavoured to be conveyed, and this notwithstanding Krishnaji's exceedingly clear and outspoken remarks on this point. The spiritual life lies so much outside our ken, and its"otherness" is so total in relation to our normal way of functioning on the level of the intellect, that only a thoroughgoing examination of the problems reveals the truth that there cannot be a technique, a path.

To the person who is wont to the intellectual, analytical approach, here lies one of the greatest stumbling blocks. Being used to juggling with concepts, he expects Krishnaji to supply him with a neat package of nicely labelled ideas and theories upon which he can get to work. But just because Krishnaji knows our fixation on words, he uses no technical jargon whatsoever; in this respect also Krishnaji is unique amongst the world's great religious teachers. And further, the simple ordinary

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words he uses are not necessarily employed in their accepted everyday meaning,but rather is their significance to be understood from the whole context. Herein lies, of course, a danger of misinterpretation for the person who is foolish enough to pick up only a fragment here and there of the talk. Many an intellectual has come away from a Krishnaji talk with one or two isolated sentences firmly fixed in his mind—or jotted down in his notebook—and promptly proceeds to build a whole philosophy upon this false basis. And, of course, these idle thought structures are always closely interwoven with the prejudices and preconceived ideas of the person concerned !

Then again, because with Krishnaji words are never fixed but always pliable and fluid, he may use the same words at different times in totally opposite senses: Although the teaching itself has never changed since his enlightenment—and had it changed it could not have been true, for only philosophies and theories change, but the Truth which is timeless,just is—the expression of the teaching has changed considerably and words such as "emotion" and "experience" have acquired an altogether different meaning. For example, in the early years when his expression was very concise and many things were implied but unspoken, Krishnaji used to say that if you wished liberation you should seek experience. These days when he is more explicit and easier to follow, he says that no amount of experience will lead to liberation.

On a strictly verbal level these two sentences *taken out of their contexts* obviously represent a logical contradiction, but on the level of true meaning they point to the same thing. Since it is not the task of the present writer to "interpret"Krishnaji—having no intention to betray him—it is left to the reader to work out these things for himself. No doubt books could be written, and undoubtedly will be written in the future by scholars, about the"evolution"in meaning of certain of Krishnaji's terms, which will then probably be called "concepts". This author will have none of it ! Suffice it to say that the life of the spirit,as soon ae the mind comes in, is riddled with paradox.

The intellectual who has worked through Krishnaji's recorded talks from beginning to end as though it concerned the academic study of a law book or a science textbook, will undoubtedly be greatly irked and the word "inconsistency" will probably not be far from his mind. But it is just this almost casual, playful attitude towards words,which is a very essential part of Krishnaji's teaching; it means that man is master of the word, and not its servant, as is now generally the case. It is also part of his unequalled pedagogic technique, for it forces us to be on our toes all the time, and really listen with fresh minds. And is it not the familiarity with the associations of words used again and again in the same fashion, which reduces the mind to sleep and staleness ?

It is not necessarily what Krishnaji says that matters most,but what one can read between the lines which is the really precious. After all,

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words and grammar have their limitations, and on that level there is only the intellect that can respond.

Who would not marvel at the truly scientific exactness and perfect economy with which Krishnaji uses words, his complete mastery over them, and notwithstanding their limitations, his ability, to convey to us a glimpse and a taste of the Infinite ? In this respect, too, has there been any other teacher like him ? It is this fact, above all, his sheer artistry and the incredible beauty of expression, which compels some of us to attend his Talks year in year out. This is not felt as just another gratification, but the very act of listening to Krishnaji confers a blessing !

To at least some of us the spectacle of Krishnaji, unrecognized by the world, giving a public talk is the true world-shaking event, and not the latest "crisis" manufactured by the politicians. Although these few gentlemen are playing with nuclear fire, and are capable of killing large numbers of people and effecting vast physical destruction, from Eternity's view point all this is as nothing. Worlds, civilizations, may come and go, but consciousness remains as before, and it is here that the real crisis is enacted.

Although in the various convulsions of mankind's evolution this diseased consciousness may undergo certain modifications and adjustments, these are of no avail to resolve the acute crisis. This crisis cannot be done away with by doctoring with the mind in the forms of psychoanalysis, organized religion, moral re-armament (sic !), so-called better education, or by the raising of the material standard of living. It is not evolution or refinement that can save us, but only a psychological mutation, a complete breaking away from any pattern of the past. This seems to me the true significance of Krishnaji's presence in the world today and his ministry, that some of the momentum of the mechanical process of evolving consciousness may be gathered and utilized as essential energy in this mutation, the explosive shattering of consciousness.

Whilst the author does not expect everyone to share his views on the significance of Krishnaji's ministry as an historical event of the very greatest order, he is convinced that it is essential to be sensitive to his words from the very beginning and see their utterly revolutionary nature, if one is not to waste one's time completely. Those people who say : Oh, he is not giving us anything new, it is only applied Christianity or applied Buddhism—and the author knows that there are quite a few of them—might just as well occupy their time more profitably elsewhere. They are not missing a spiritual opportunity, for obviously they are not yet ready to receive the naked truth, with all its beauty but also with all its upheaval—being still satisfied with a continuation of the comforting pattern of the past. It is perhaps not altogether surprising to observe that generally people either click at once or don't at all with Krishnaji's teaching, and there appears to be no in-between.

It is common for organized religion to emphasize to prospective

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converts the importance of the right attitude towards its particular cult. With regard to Krishnaji it seems to the writer of the utmost importance to have no attitude whatsoever, to come to the man with empty hands; otherwise we shall not meet him at all. This means to have no foreknowledge about him—the approach of a child. Also, we shall not even expect to get the slightest thing out of the teaching. Normally, a teaching implies a means to an end, whether the end be "virtue", "holiness", "salvation", or something else. Krishnaji's "No-Teaching", however, is not to be applied, and it does not "get you anywhere". It has basically no utilitarian value, although in practice one may find it has in an indirect way—but by then this is no longer seen to be of very great interest. One must love it (in the true sense of the word) for its own sake.

After having said all this, and we are still interested in Krishnaji, we shall maybe have eliminated those who would go to him for the wrong reason (i.e., with an attitude), and really listen without any motive, with an attention that is undivided because there is no pressure by the mind. We shall then perhaps find that when there is this total attention, a state of "pure listening" has come into being, a stillness in which there is no effort, no application of any kind, yet something happens **immediately.** Then maybe, the miracle takes place: we shall be given richly—and we shall know who he is.

ADDENDUM

For the benefit and interest of those who are already acquainted with Krishnamurti's work, a short résumé of what the author considers to be the heart of the teaching is appended here. This will merely enable the reader to focus his mind afresh on certain essential points,and,it is hoped, will induce him to refer back to the original writings. It is presented entirely in Krishnamurti's own words as they come to us in a work like "*First and Last Freedom*" (publ. V. Gollancz, London, 1954).

Those readers who are not yet familiar with Krishnamurti are advised to skip the following section and turn instead directly to the source; for this is the nature of the teaching that no résumé can do it full justice or serve as a substitute for the original.

"Virtue is the understanding of what is and therefore the freedom from it. This comes about only through passive awareness, which is extreme alertness,from moment to moment without accumulating the experience which awareness brings. The state of creativeness comes when the self,which is the process of recognition and accumulation, has been completely understood, and so ceases to be.

When action is compelled by an idea, action can never liberate us. Action without ideation—the only state in which there is complete understanding—is possible only when the idea ceases; and the idea ceases only when there is love. So long as there is mentation, which is a reaction based on the past, there ean be no release.

Belief and knowledge are related to desire and act as barriers between oneself and that which is, in interposing the conditioning reaction of the past.

Because we feel empty, nothing,we base our lives on effort,struggle, to become, to "fulfill" ourselves Is not all such effort the activity of the self, with its inevitable result of more conflict, more misery ? The moment of creation is not born of struggle.Only in not running away from

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the void, in accepting that emptiness one will find that there comes that creative state which alone brings happiness.

All desires are moving, transient—through not realizing this we live in a state of continuous contradiction: what we want to be and what we are. The function of the mind is to be separated; otherwise your mind is not there. Thought is nothing but reaction, thought is not creative; it is the result of the desire to be, politically, or religio-sociologically. Whatever thought, mind, creates is a circle within the field of the self; complete realization of this, complete understanding of the process of the mind, causes the mind to become quite still; this results in the dissolving of the self. Beyond the physical needs, any form of desire becomes a psychological process by which the mind builds the idea of the "me"and strengthens itself at the centre.

The thinker is the thought. The maker of effort and its object are the same. Revolution, this psychological, creative revolution, in which the "me" is not, comes only when the thinker and thought are one, when there is no duality such as the thinker controlling the thought; it is this experience alone that releases the creative energy which in turn brings about a fundamental revolution, the breaking up of the psychological "me"."

When Intellect Forgets To Feed The Soul

If the sun must press on smoke and the earth is troubled
Longest in the heart with a dream of burning,
If the hills can force out deeprooted towers
At the awakening.

If the fire that burns in graves is as long as loving,
When a widow waits till her sons are fathers,
And revenge is measured for its perfection
By generations—

I say I stay free to burn in the morning water:
Now no one can dam up my voices, no one
Teach me not to carry the stars or break the
Branches of reason.

You who feed a living soul with the dung of sparrows,
You who warm your flesh with unliving ashes,
I have found the wood that was warm at midnight
Cold in the morning.

See, the starfish have five fingers but hands are stronger,
Fools must hide in ashes but fire is stronger,
Statues bring no fruit but the breath of living
Burns for a harvest.

JOHN KING-FARLOW

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ARE NECESSARY CAUSAL CONNECTIONS POSSIBLE ?

JOHN O. NELSON

IF the view that causal connections cannot be necessary connections is to lay claim *de jure* and not merely *de facto* to the wide acceptance it has received in empiricist quarters it must show this justification: either (A) that it is self-evidently true, or (B) that it is supported by sound arguments. In the following pages I shall endeavor to demonstrate that neither of these conditions holds; that in the first place the doctrine is not self-evidently true but indeed—to judge by the immediate appearance of things—the very opposite; and in the second place that the arguments supporting the doctrine are entirely specious.

In making these claims I am using the term "necessary connections" in the same sense that those who deny there can be necessary causal connections have usually had in mind. Following Hume, it is roughly this: X has a necessary connection with Y if and only if we cannot conceive there being X and not Y without altering our conception of X.[1]

While on the subject of Hume I might explain the frequent citation of passages from that philosopher in succeeding paragraphs. The doctrine that causal connections cannot be necessary connections, which for the purposes of reference I shall call "the empiricist doctrine," is generally traced back to Hume.[2] The difficulties associated with interpreting Hume's scepticism extend, of course, to interpreting his views on necessary causal relations. But there can be no doubt that the followers of Hume—and that is to say, typical empiricists—deny in a straight-forward manner the possibility of necessary causal connections[3] and that the grounds for their denial lie in the arguments developed by Hume. Both, then, as the alleged parent of the empiricist doctrine and as the source of its widespread influence it seems only appropriate to take, so to speak, Hume as our text.

The plan of the present paper therefore runs as follows. After showing that the immediate appearance of things does not establish the empiricist doctrine I shall endeavor to show that the arguments of Hume do not either, being one and all specious. These arguments I shall arrange in an order of what I consider to be increasing power and persuasiveness,

1. Hume, 'A Treatise of Human Nature,' Bk.i,part 3,sec.1,pp. 69-70, Selby-Bigge Oxford edition. All references to this work will be to this edition and will be abbreviated THN.
2. For instance. Ayer, 'Language, Truth, and Logic,' Dover edition, p. 150.
3. For instance, Feigl, 'Notes on Causality,' 'Readings in the Philosophy of Science.' ed. Feigl and Brodbeck. pp. 415-416.

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the most powerful and persuasive coming last. My reasoning here is that the more powerful and persuasive a fallacious argument is the more penetrating and complete must be the analysis that attempts to lay bare and disarm the fallacy. If I am right in this surmise it is essential in refuting the Humean arguments to proceed in the manner outlined. In addition, the final outcome of such a procedure must be, if successful, to provide a fairly accurate description of the concepts under investigation. And this, it seems to me, is the ultimate desideratum of any philosophical inquiry.

I should like to add one further note prefatory to carrying out the the present project. For the purpose of indicating several broad divisions in the classes of argument under examination I have here and there set down a number. I shall not be concerned to defend the accuracy of these divisions. Indeed, I shall not be surprised if where I saw a natural division the reader sees none, and vice-versa. The arguments in question overlap and criss-cross in many directions. Any division of them must therefore, I fear, be somewhat impressionistic at best.

A. That the Empiricist Doctrine is not Self-Evidently True

Consider the following instance. We are building a house and we are asked why we are bracing the walls. We truthfully answer, "When the wind blows it causes a pressure on walls." Here we infer as an effect of blowing wind a **pressure upon walls**. According to our previous specifications there exists a necessary connection between a wind blowing on a wall and a pressure upon the wall if when we conceive there to be a wind blowing on a wall we must also conceive there to be a pressure on the wall or else alter our conception of a blowing wind. But clearly when we try to conceive a wind blowing on a wall without there being some pressure exerted on the wall we utterly fail.

B. That Hume's Arguments Supporting the Empiricist Doctrine Are Specious

1. It is maintained by Hume as a general principle that all existences are discrete or separable.[4] Obviously, if we agree to this tenet we cannot plausibly maintain that there exist necessary connections between events or existences, in that then we shall have to maintain both that one event must accompany another and at the same time that it need not do so (being separable).

But why should we give credence to the tenet of separability ? The immediate appearance of things, according to which causal inferences do sometimes depict necessary connections, certainly seems to refute it. Our only reason for accepting the doctrine must be still other principles or arguments; and since those principles and arguments are essentially the same that are advanced for denying necessary causal connections, in overthrowing the one we overthrow the other. What follows, therefore, may be construed as serving both ends.

4. THN p. 10. 'There are not any two impressions which are prefectly inseparable.'

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2. It is argued by Hume that the inseparability or necessary connection of objects is gainsaid by the fact that we can conceive "any objects to be non-existent this moment and existent the next."[5] But while we can think of there being walls and then no walls,wind and then no wind, pressures and then no pressures, we do not seem to be able to think of there being a wind blowing on a wall and no pressures exerted. Clearly, then, arguments that intend to show that we can conceive an individual, isolated thing existing or not existing as we please do not demonstrate that there are not necessary connections between existences (plural).

3. It is argued by Hume and others that there cannot be necessary causal connections because when we observe events we find nothing contained in them or between them which goes by the name of necessity(we find no impression of necessity as such). When we look for what the term "necessity" (or "power") represents(for the impression of the idea) we find at most repetition of events and a feeling in our minds. Hence, "necessary causal connection" can only mean repetition of events or a feeling in our minds.[6]

In effect, Hume and those who follow him here are pretending that the term "necessity" is a name standing for some simple quality or complex object, like the words "green" and "chair". First, a search is instituted for the simple quality; this perforce failing, a search is made for the complex object.The very nature of the last enterprise intrinsically ensures that we shall equate any experiences that are related to necessary or causal connections and that might possibly bear names, e. g., repetition of events and a feeling in our minds, with the meaning of "necessary causal connections." But in this we are tacitly assuming that all nouns and adjectives function like names.Minus that assumption our argument has no more force than an unexamined hypothesis and surely —in the light of Wittgenstein's investigations—that is just what we shall want to call.

When we examine the actual use of the term "necessity" the comparison suggests itself, not with naming words, but with a grader's application of the marks A, B, C, etc.,to examination papers.Take, for example, the case of a grader marking an examination "B." He does so, not because he finds some queer property in the examination called B but because the examination meets certain material requirements for being called B. These material requirements, furthermore, are not general to B examinations and to look for such general material requirements would palpably lead one into all sorts of nonsense and confusion.If the exami-

5. In the passage cited Hume, to be sure, is specifically interested in showing that the proposition, 'Whatever begins to exist must have a cause of existence,' is not intuitively true or demonstrable. But he believes that in establishing this point he also shows the separability of objects see 'THN'. p. 80

6. See 'THN',sec. 14, esp. pp. 161 ff. The same sort of reasoning appears to underlie much contemporary discussion of the subject. See J. Kemeny, 'A Philosopher Looks at Science' (Van Nostrand, 1959) pp. 48-49 as an example.

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nation is in history. the requirements to be met are one thing, e.g.,does the student give a good account of the Reform Bill of 1832;if in English, another; if for freshman, one thing; for graduate students, another, and so on. But is not something similar the case with respect to our application of the term "necessary" (or "must") to causal states of affairs ? When we say that a blowing wind must produce a pressure on a wall we obviously do not do so because we find some property called "must" (or "necessity") in these things or between them,but because the requirements for our saying "must" are met. These requirements do not, as in the example of marking examinations B, consist in particular specifications conceived by us; but they do have their basis in particular, non-general elements, namely, our knowledge of this or that particular X and Y. For instance, I say that a 100 ton rock falling 100 feet squarely on a man **must** produce his death; that is, on the basis of what I know about rocks, weights, distances and men, I consider the requirements fulfilled that entitle me to say "must",But must 100 tons of water falling 100feet on a man kill him ? I cannot say, not having enough knowledge of the properties of falling water to go by. In either case, my use of the term "must" is not the naming use (the impression of an idea). We have here a different use of words. Therefore, the charge that there cannot properly be said to be necessary causal connections because we can find no impression in things which goes by the name "necessary" may be dismissed. The charge is of course true, but it is irrelevant.

At this point, however, it may be argued: even granted that the word "necessary" is not a name for an impression, analysis shows that the meaning of "necessary" precludes there being necessary causal connections. For when we say the requirements are fulfilled that entitle us to say that X **must** cause Y, these requirements, by our previous admission, are that X cannot be **conceived** without Y except by altering our conception of X. When this formal requirement is satisfied and only when it is we are entitled to say that X **must** cause Y. The impossibility of conceiving X without Y is therefore both the neccssary and sufficient condition for asserting that X has a necessary relation to Y, and what else then can we mean when we apply the term "necessary"to X and Y? If, though, the meaning of the term "necessary"consists in the necessary and sufficient conditions for applying the term, and these in turn are the impossibility of conceiving X without Y,then the term "necessarily" certainly does not signify some characteristic of events but a subjective condition of our minds. Hence, strictly speaking, causes cannot be necessary;and when we speak of them being so we are speaking in a very misleading fashion.

Not it must be admitted that in science a thing (element, etc.) is sometimes equated with its **theoretically** necessary and sufficient conditions. For example, heat is defined as the movement of molecules. Interpreting this definition we say that,theoretically,there cannot be heat without the

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movement of molecules, nor the movement of molecules without heat. Since philosophy aims at being a science of some sort it is tempting in philosophical inquiries to treat all biconditionals as similar to the theoretical biconditionals of science. If we have already committed ourselves to treating "necessary" as a name (which we have, when we ask what the impression of the idea is), we are not merely under the temptation, but indeed we are forced by the very logic of our commitment, to treat the biconditional, X must cause Y if and only if we cannot conceive X without Y, like a theoretical biconditional of science. But this is an error, and it is an error precisely because it requires us to identify the necessary and sufficient conditions for applying the term "necessary" with the meaning of "necessary".

Biconditionals like, "X necessarily causes Y if and only if we cannot conceive X without Y," "An examination is a B examination if and only if it meets the requirements conceived by us for B examinations." or "A person may legally vote if and only if he has been properly registered," I shall call "biconditionals of entitlement." While it would not be improper to maintain that such biconditionals express, like theoretical biconditionals, necessary and sufficient conditions, it is clear that they do not, like some theoretical biconditionals, express identities or "real natures". Thus, if I am properly registered to vote, and only if I am, then I may legally vote. It is possible, however, for me to refuse to perform this act of voting that I am entitled to perform. And in general it may be said that in matters of entitlement necessary and sufficient conditions for an act are not, as in some theoretical biconditions, equatable with the act. They confer the right to the act, but not the act itself. Thus, on the face of it, we may deny that "I vote" is identical with "I am properly registered to vote" or that "This examination meets the requirements conceived by us for calling an examination a B exam" is identical with "This examination is a B examination" or that "I cannot conceive X without Y" is identical with "X is necessarily related to Y".

A further point that needs to be made in the present connection is that if, in our philosophical discussions, we do equate biconditionals of entitlement with the meanings of the terms involved what we logically accomplish is tantamount to the case in which we refuse, in ordinary life, to go beyond asserting the biconditionals of an entitlement. But consider now the case where the necessary and sufficient conditions of entitlement are present and we refuse to exercise the right they confer on us. For example, we are willing with respect to an examination to say no more than, "This examination meets the requirements conceived by us for calling it a 'B'." Clearly, we then imply either some doubt concerning the validity of our criteria or the suspicion that the examination met our requirements dishonestly or improperly. Excluding the latter alternative (which has no bearing on the present discussion), we at once suggest that the grade 'B' which is indicated rests on a subjective basis. This conse-

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quence follows from the fact that once we reject criteria of entitlement by refusing to exercise the rights they confer on us a **subjective basis** is all that we can lay claim to. On the other hand, when we exercise the rights that biconditionals of entitlement confer on us we *ipso facto* signify acceptance of our criteria and so remove them from any question or doubt. But when criteria or conditions of entitlement are removed from question or doubt they no longer comprise another topic **in addition** to their application. That is to say, in applying them, we are left with only pure descriptions of fact. It is in this way that moral attributions, e.g., "He is a good man," possess the character of pure descriptions of fact, but only so long as we **make** (i.e., exercise the right conferred on us by certain biconditionals) those attributions. But let me illustrate what I mean by an example. Take the assertion, "This examination is a 'B' ". In making this assertion we in fact exercise the right conferred on us by certain biconditionals of entitlement; and thus no question is left over as to the validity of the criteria employed. Since, therefore, these criteria are not in issue they vanish, both logically and psychologically, from consideration and view, with the result that our assertion has the status and sense of an objective statement, a statement characterizing the examination and **nothing else.**

What I have been saying concerning the marking of examinations holds for the application of the concept of necessity (our use of the term 'must'). To express the necessary and sufficient conditions for asserting "X is necessarily related to Y," is not the same thing at all as to assert that X is necessarily related to Y. To say no more than, "We cannot conceive X separated from Y" is, on the face of it, to make a partially subjective statement; to suggest some question as to the validity of our powers of conception, etc., whereas to exercise the right that is present and assert, "X is necessarily related to Y," is to make an objective statement concerning X and Y; no question of our powers of conception is implied; and hence we assert, in effect, not that we cannot conceive X separated from Y but that X cannot **occur** separated from Y.But plainly the sense of a subjective statement is not the sense of an objective statement; and consequently it cannot possibly be the case that the meaning of "X is necessarily related to Y"may be equated with the necessary and sufficient coditions entitling us to that assertion.

Concomitantly, no valid question arises as to our rights to proceed from the necessary and sufficient conditions for asserting"X is necessarily related to Y" to that assertion itself, since those conditions themselves constitute the right. Thus, being unable to conceive a 100 ton rock falling 100 feet on a man without killing him, I have the right to say that the rock must kill him; and exercising this right, I say with as absolute propriety as is mine in marking an examination B, "The falling rock must cause the death of the man". Obviously, then,it cannot be impossible for there to be necessary causal connections, if this is meant to be a

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question of the proper application of the concept of necessity(the proper use of the term 'must'' or "necessary"). Nor,from what was said before, can it rightly be maintained that in asserting necessary causal connections between existences we are not really asserting necessity but something else or that we are not really asserting a necessary connection to hold between the existences but are merely describing some internal impression or repetition of events—that is,the necessary and sufficient conditions for asserting necessary causal connections.

4. There is an argument that Hume uses to show that the discernment of necessary causal connections cannot rest on *a priori* reasoning but must rest on experience. This argument might be restated to omit reference to the specific issues of the *a priori* and at the same time bear generally on the question of the separability of events and necessary causal connections. We might argue: Adam looking for the first time at a billiard ball hitting another might as likely conceive one motion as another, or none at all; and so for all other existences or phenomena. Therefore, existences or events are separable and not necessarily connected.[7]

The undeniable force that this sort of argument exercises on our minds, so that the more we contemplate it the more we are convinced, would seem to lie in our human knack and propensity to put ourselves in the place of others. Putting myself in the place of Adam, indeed I do discover that I now as easily conceive a 100 ton rock not killing a man as killing him when falling on him from 100 feet.a billiard ball going in one direction as another,and so on.It seems therefore that what I said I could not conceive I can,and hence that I must give up asserting the necessary causal connections that I have been asserting and all others.

But here a psychological trick is being played on us. No doubt at all, in the role of Adam, we can conceive all existences whatsoever as separable from all others. We can also suppose, however, that Adam, when presented for the first time with addition, added two and two to be five, three,or anything else.Are we to conclude from this that two plus two may not make four ? We might as sensibly believe that because, by turning quickly in circles we can make the world seem to spin around us, it is in fact spinning around us !

The point is:our attribution of necessary causal connections between existences rests on our knowledge of those particular existences. Thus, the real question at issue is not : can we or can we not conceive X without Y, but can we conceive X without Y on the basis of what we know of X and Y. Naturally, if we replace knowledge with ignorance, as we tacitly do when we put ourselves in Adam's place,we eliminate a *fortiori* every possible attribution of necessary causal connections. But is this not a perfectly incredible thing to do ? In treating Adam ignorant as the arbiter of truth. and Adam knowledgeable as in error, we propound the

7. Hume, 'An Enquiry Concerning Human Understanding', section four, part one.

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amazing doctrine that the truth lies in ignorance and falsehood in knowledge. Even poor Adam, it may be presumed, gave up that pretense just as soon as he acquired some knowledge, and having learned about billiard balls and addition found it no longer conceivable that when struck billiard balls should fail to move or that two plus two should make five.

"But are we not all—the wisest of us just as much as Adam—fundamentally ignorant ?" it may be retorted. "We say, 'These billiard balls striking in this way must take those directions.' How can we know, though, that in the immediate future billiard balls and other things will not behave in ways completely different from the ways that we now envisage ? We cannot. Thus, as far as we know, the billiard balls may move in any way whatsoever or no way at all when struck; cloth when sprinkled with water may not become damp, and so on. But clearly it is impossible to maintain both that the billiard balls and other things must behave in certain ways and yet that they may behave in any way whatsoever."

Now as long as we insist on contemplating the above argument we must again find ourselves, as with the Adam argument, impelled to give our assent to it. In asking ourselves questions which we cannot answer, like "How can we know the future will be like the past ?", we must always produce in ourselves feelings of doubt and ignorance; and these feelings, in turn, must leave us psychologically reluctant to assert necessary causal connections. But such feelings do not themselves constitute evidence.[8] We still want to ask : Is the argument in question sound—is the conviction that it produces warranted ? And to this question the answer is negative.

In the first place, we might relevantly point out that real ignorance as opposed to mere feelings of ignorance is determined by empirical and not logical inability. We are ignorant, for instance, of what the surface of Venus looks like because as yet we have been unable to get hold of certain empirical data. But while we are unable to square the circle or write down the largest integer we are not ignorant of how to square a circle and we are not ignorant of what the largest integer is. Inability here is a logical inabilty and hence does not count for or against ignorance. It has nothing to do with ignorance.

Our inability to answer the question, "How can we know the future will be like the past ?", is clearly not an empirical inability. It is not the case, for instance, that we have certain powers of clairvoyance which we are not using. Since every particular prediction of the future rests on past experience the generalized proposition, "The future will be like the past," is logically (not empirically) cut off from all evidence or grounds of prediction. By the same token, our inability to answer how we can know the future will be like the past is a logical inability and thus no more a sign of real ignorance than is our inability to square the circle.

8. This is a point we have discussed at more length in "Knowledge of Remote Existence," 'The Review of Metaphysics,' June 1958, pp. 574 ff.

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In the second place,even if there is no logical impossibility in knowing the future will be like the past, e.g., we might want so say that an omniscient Being like God knows that the future will be like the past,there is certainly a human impossibility in it. If, then, we grant what the argument asks us to, namely, that we are ignorant, we do so on the basis of a standard that cannot possibly be used to distinguish ignorance and knowledge in human affairs. Offhand we should say : a standard that can not count in human affairs does not count in them. But in case this seems too short an answer to the argument in question, we might consider these further consequences of assenting to it. If we make some humanly impossible standard, e.g., omniscience, the criterion of human knowledge and ignorance, then we must grant that we know nothing. Logically, this concession entails not only that we give up asserting necessary causal relations but that we replace our present envisagements and understanding of things by mere question marks. For as long as we retain our present envisagements and understanding of things, we do possess knowledge and consequently we are entitled to assert necessary causal relations. Thus, we must now ask ;can we give up our present envisagements and understanding of things for mere question marks ? Obviously, as a practical matter, we cannot. We should perish in a moment if we tried. But even if we decide to ignore practical considerations, we are surely obliged,as rational beings, to answer why we should give up our present understanding and envisagements of things for mere question marks. What warrant is there ? Have we, for example, suffered a breakdown in our present system of understanding and conceptions ? Certainly not. Will we be better off giving up our present system for a mess of question marks ? As we have already pointed out, certainly not ! Is it reasonable to give up something valuable and hard-won for something of no value because we arbitrarily can, or think we can ? Certainly not ! What reason, then, can be provided for assenting to the argument in question ?

The one reason that can, it seems, be provided is that we are able to conceive things behaving in ways different from those that we want to say they must behave in; we can, for instance, conceive billiard balls when struck not moving in the ways we want to say they must, and so on. And clearly, unless we are falling into some fallacy, to concede that we can conceive these things is incompatible with maintaining necessary causal relations between them.

But falling into a fallacy—specifically, a fallacy of ambiguity—is precisely what we are doing in the preceding paragraph. When we say that we can conceive billiard balls when struck moving in all sorts of odd ways, e.g., rising fifty feet straight up in the air, we are using the term "conceive" as synonymous with "form a mental image." Because of their abstract nature, philosophical disquisitions tend to employ the terms "conceive," "envisage," "picture" in this peculiar and impractical way. Thus, in such discussions it will be said that one can conceive a

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cow jumping over a twenty foot tree, or a billiard ball when lightly struck moving 50 feet straight up into the air, and so on. In actual practice, however, we should all want to say that it was inconceivable that a cow jumped over a twenty foot tree (suppose that we were told by a child that he had seen such a thing) or that an ordinary billiard ball, when lightly struck, jumped fifty feet straight up into the air. And the reason is this : in actual practice, the term "conceive" ("envisage", "picture") is used in such a way that we assert "X can be conceived separate from Y" only if our knowledge of X and Y and other things can be **harmonized** with "X is separated from Y, "and much the same specifications hold for our use of "inconceivable" ("unimaginable"). Thus, we say that it is inconceivable that a cow can jump over a twenty foot tree because that proposition cannot be harmonized with our knowledge of cows, gravity, and so on; we say that it is conceivable that a cow should be born without a tail because this proposition can be harmonized with what we know, or think we know, about the skeletal structure of cows.[9]

The question arises, consequently: which sense of "conceive" is to be appealed to in deciding whether or not we have the right to assert necessary connections between existences—the practical or the philosophical sense,as they might be called ?If we were previously correct in appealing to Adam knowledgeable over against Adam ignorant, and certainly we were correct, we must take the practical sense of "conceive" as the basis of our reasoning. For strictly speaking, to conceive philosophically is no different from ignorance, in that the forming of mental images—save for one qualification that we shall immediately discuss—rests solely on **will or volition.** Thus, even if we were able to **conceive philosophically** what the sceptic's argument asks us to, we should still want to deny that it was thereby demonstrated that we had no right to assert necessary causal connections.

5. We have said: that which determines whether we can philosophically conceive a thing or not is whether or not we can from a mental image of it. But what determines, in addition to mere will or volition, whether we can form a mental image of say, X separated from Y ? The answer appears to be: definition. If it is logically impossible to separate X from Y—that is, if by definition Y is contained in X—then we cannot form a mental image of X separated from Y.

Now this **logical** fact ties in closely with another argument that is leveled against our right to make assertions of necessary causal connections. The argument, simply put, is that there is no contradiction in conceiving one existence apart from another: hence, there can be no necessary connection between existences, causal or otherwise.[10]

9. For a more extended discussion of this and the following question, see my article 'Conceivability and Scepticism,' DARSHANA, January, 1961, pp. 4-11.

10. VIDE Hume. 'An Inquiry Concerning Human Understanding', part one, section 4: 'The contrary of every matter of fact is still possible because it can never imply a contradiction'.

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What the above argument illegitimately does is to treat causal necessity according to the very same specifications that define verbal and syntactical necessity, and then, because these specifications are not satisfied, it concludes that there is no such thing as causal necessity. Ostensibly the argument makes this uncalled-for identification whenever the term "contradiction" is understood as applying only to propositions or words. If we agree to that stipulation and at the same time suppose that necessity is definable in terms of contradiction, *a fortiori* we restrict necessity to verbal or syntactical necessity (logical necessity). We win our case by definition. And by the same token, we are not likely to convince anyone who does not wish to be convinced.

But the same purposes are much more subtly served, and the same ends reached, if we understand the term "contradiction" to mean "cannot be conceived" and "cannot be conceived" to mean "cannot from a mental image of." For reasons already discussed, in making these identifications we make logical necessity the criterion of causal necessity as surely as if we explicitly equated **necessity** with **definition.** And still more subtly and invisibly the same purposes are served where the argument says that we can conceive one existence apart from another. We need to remark here that **two** existences are made the turning point of consideration, **one existence** and **another.** For while two existences or things serve very well to exemplify logical necessity, they do not serve at all to exemplify causal necessity. By definition we can link one thing to one other , e. g., triangle and three-sidedness. Natural however, do not flow from simple causes. Water does not produce damp cloth;a falling rock does not produce a crushed man.Effects flow from the actions of one thing upon another : water sprinkled on cloth produces dampness in the cloth; a rock falling on a man produces the death of that man. In short, it takes at least three things or existences to exemplify causal connections : X acting on Y and the effect Z.[11] To say, therefore, that we can conceive one existence separated from another, e. g., falling rocks from crushed men, water from damp cloths, is very true indeed. That we can, though, illustrates only the fact that two existences do nor exemplity causal connections. It does not show, as it purports to and tempts us to think, that existences never possess necessary causal connections.

There is another side to this coin, however. Instead of supposing that causal necessities do not exist because they do not meet the specifications of logical necessities, we might suppose that causal connections can be necessary, but when they are, it is because we have imported definitions or some other basis of logical necessity into them. Thus we might argue that, if we are inclined to say that water sprinkled on cloth **must** cause it to become damp, it is solely because the definition of water includes **dampness** in it, as yard includes **three feet.**

11 See my article, 'A Refutation of the Humean Analysis of Causality," DARSHANA, August, 1962, pp. 95-101.

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In spite of appearances, it is not. The trouble is this. When we sa that one thing causes another, we purport to be asserting propositions whose verifications can be made by reference to experience; we purport to be describing matters of fact (in Hume's terminology). When we say that a proposition is true by definition we purport to be referring to conventions of word-usage; we purport to be speaking about propositions whose verifications are made,not by reference to experience,but reference to dictionaries or our auditor's acquaintance with some language,e.g.propositions like "A triangle has three sides" or "A saffron rose is yellow." Such propositions, it is clear, do not describe matters of non-linguistic fact. If, therefore, we maintain that it is proper to assert propositions like "X necessarily causes Y"or "X must cause Y," but that the necessity we refer to in them expresses a definition, we really deny our original claim that one and the same connection between existences can be both causal and necessary.For if in the proposition"X necessarily causes Y,'the term "necessarily"does not refer to non-linguistic matters of fact and the term"causes"does,we obviously cannot be using the former term to describe what the latter term refers to, and since those are causal connections we cannot really mean that **causal connections** are necessary. And such a conclusion is certainly **not** grist for our mill !

That a theory does not agree with a claim of our own does not, of couse, mean that it is disproved. We shall therefore now want to show that definition is not the basis of the necessity that belongs to necessary causal connections. "But if definition is not their basis, what is ?"it may be asked in tones that suggest, "What else can be ?" Hence this question too we shall want, if possible, to answer.

The following considerations, it seems to me, not only show that causal necessities do not rest on definitions but illustrate the true nature of their basis, that being a knowledge of particular things gained through experience, and an impossibility to conceive which rests **on that knowledge.**

(a) If the proposition "X must cause Y" (or "X necessarily causes Y") both describes a non-linguistic matter of fact and expresses a definition it makes an *a priori* and an *a posteriori* claim at one and the same time: Now there are perhaps propositions that do just that, e.g., one might plausibly hold that the following proposition does, "The monkey is a mammal that is found as far north as Greenland." In the latter case, however, two predications are being made of the subject, monkey: first, that it is a mammal, and second that it is found as far north as Greenland. In the case of "X must cause Y" or "X necessarily causes Y" only one predication is being made of the subject, X, namely, that it necessarily causes Y;and this one predication is being claimed to both describe a matter of non-linguistic fact and to express a definition. That one predication can make two such opposed claims at once appears on the fact of it impossible. Therefore, since the predication of "cause" makes an

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a posteriori claim we may assume that the entire predication, i.e., the predication of necessary cause, does also.

(b) It is not at all difficult to find true propositions of the form "X necessarily causes Y," of which it would be absolutely incredible to maintain that they expressed definitions. Take, for instance, the true proposition, "An atom bomb now exploded in this room must cause the death of that fly on the wall there." Certainly by no stretch of the imagination can one say that killing a fly, much less this fly on the wall there, is part of the definition of an atom bomb. Nor is it credible either to maintain that, while not expressing a definition, we are here computing from a definition, as we do when we assert that all the radii of a Euclidean circle are of equal length. For in fact we may not know what the definition of "atom bomb" is; we may not know what the definition of "fly" is. Indeed, if asked for the definition of these terms, we might very well be unable to answer. Nonetheless, if familiar at all with instances of atom bomb explosions and flies, we should still want to assert that an atom bomb now exploded in this room must cause the death of that fly on the wall.

(c) We might note that logical necessities, e.g., take the ones expressed in "Every point on the circumference of a circle must be equidistant from the center" or "A saffron rose must be yellow," possess a very different kind of force—indeed, a very different "feeling," one might say —from causal necessities, e.g., take those expressed in "A wind blowing on a wall must cause a pressure on the wall" or "An atom bomb exploded in this room must cause the death of the fly on the wall there." There is something artificial in the force conveyed by the first proposition. We do not seem to be confronted with realities that can crush and overwhelm us, but with necessities whose existence somehow depends on our own say-so. And this is patently the case. It is only so long as we commit ourselves by an act of will to certain conventions and constructions of human ingenuity—Euclidean geometry or the English language—that we need grant, e.g., that every point on the circumference of a circle must be equidistant from the center ("But that is Euclid's definition," we can only say, if pressed) or that a saffron rose must be yellow ("But saffron means yellow in English" we can at most explain, if pressed). Remove these commitments: all necessity vanishes. The second set of propositions, on the other hand, conveys the force of realities that can crush and overwhelm us; that do not depend in the slightest on our say-so. To be sure, it is a matter of convention that we use the words "wind,', "atom bomb", "fly", and so on to refer to the things that we do. But certainly we do not think for a moment that any act of volition or convention will banish the fact that an atom bomb exploded in this room must cause the death of that fly on the wall there, or that a 100 ton rock falling 100 feet on a man must cause him to be crushed to death, or that a wind blowing on a wall must cause pressure on the wall.

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(d) Finally, if someone doubted, e.g., that saffron roses must be yellow, or some other necessity resting on definition or conventions of English usage, we could only refer him to a dictionary or to the authority of speakers of English. On the other hand, if someone doubted that, e.g., water sprinkled on a cloth must produce dampness in the cloth,or a wind blowing on a wall must cause a pressure on the wall, or some other causal necessity, we might, it is true, wonder whether our auditor understood our words and so refer him to a dictionary.But we could also refer him to experience. Thus, we might have him handle water and cloth, dip the latter in the former, etc., and then, when we felt that he was sufficiently familiar with these things, ask him if he did not now perceive that water sprinkled on cloth must cause it to be damp. In short, what we should be concerned with in the case of causal necessities would not be the person's familiarity with words but his familiarity with things. And this illustrates the fact that when we ascribe causal necessities,as opposed to logical necessities, it is on the basis of our knowledge or presumed knowledge of the things referred to by our words, not our knowledge of the latter. Thus, we all know perfectly well the meaning of the words "water," "1 ton," "100 feet," "rock," "man," "death." If causal necessities rested on definitions or our knowledge of the meaning of words we ought to have no more hesitation in asserting that a ton of water falling 100 feet on a man must cause his death or need not cause it than we do in asserting that a 1 ton rock falling 100 feet on a man must cause his death. But we are uncertain as to whether a ton of water falling 100 feet on a man must cause his death or not. What then accounts for the difference in the two cases ? Is it not simply the fact that we do not know the properties of a ton of falling water as well as we know the properties of a ton rock falling?And is not this lack of knowledge only to be remedied, not by dictionaries, but by experience and observation ?

6. The last and most powerful argument that might be made against the thesis we have been defending rests on our own arguments. So far we have maintained these views: On the basis of experience and experiment we acquire knowledge of, say X and Y. In terms of that knowledge and our knowledge of other things, we cannot conceive X acting on Y without producing Z. The fact that we cannot conceive this constitutes the necessary and sufficient condition of our right to assert that X acting on Y must cause Z. Now previously we contended that in exercising this right we *ipso facto* depict an objective state of affairs (as we would not if we refused to go beyond asserting the necessary and sufficient conditions of that right). But here it may be objected:certainly it is not by arbitrary fiat that we take our inability to conceive X acting on Y without Z as the right to assert, "X acting on Y must cause Z." It is surely for some reason that, given these conditions,we want to say must instead of something else, e.g. "will probably." What then is the source of our impulse to say must in such cases ? Is it not that in trying to conceive X acting

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on Y without resulting in Z we find that we cannot harmonize the proposition "X acts on Y and there is no Z" with our knowledge of X and Y and other things ? But this inability is an inability of our minds and not of things. Therefore, when we assert,"X acting on Y must cause Z," does not the word must really depict a feature of our minds and not of things ? Is it not the case, as Hume says, and as others say, that "as it is usual for us to transfer our own feelings to the objects on which they are dependent,we attach the internal sentiment to the external objects"?[12]

Now although it is true that our inability to conceive X acting on Y without Z is the occasion for our asserting that X acting on Y must cause Z, this inability is not, in turn, autogenous. What makes us unable to conceive X acting on Y without Z is our knowledge of X and Y and other things. But knowledge is not something that colors what is known. X known is X. Hence, to say that our knowledge of X and Y and other things cannot be harmonized with the proposition that X acts on Y without causing Z is essentially the same thing as saying that the natures of X and Y and other things prevent X acting on Y without Z occurring. And to say that our knowledge of these things prevents us from conceiving X acting on Y without Z occurring is essentially to say that the inseparability of X, Y,and Z prevents our conceiving their separation.Thus when people assert, as they sometimes (not always) do, "X acting on Y must cause Z," they quite rightly do not take themselves to be depicting a state of their minds but properties of external things.For that,of course, isprecisely what they are doing,

12. Hume, Letter to Gilbert Elliot of Minto, 'The Letters of David Hume,' ed.Greig pp. 155-156. Hume is discussing causation. Although he does not mention the idea of necessity it seems clear that this is what he has in mind.

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VIEWS OF FREUD AND JUNG CONCERNING RELIGION

Y. MASIH

THE paper aims at showing that both Freud and Jung show their dissatisfaction with Western theism. However, Freud implicitly and Jung explicitly support the eastern religion of the Supreme Spirit.

Religion has both subjective and objective poles. Subjectively speaking, religion is a matter of personal experience which ordinarily uplifts and transforms a worshipper. But it is also held by most theists, belonging to the Semitic traditions specially, that the numinous experience proceeds from an encounter with a transcendent God. Religious experience, it is pointed out; does not follow simply from man's search of God, but also from God's search of and concern for man. Therefore, Semitic theists hold that there is actually an all-powerful, all-loving and wise God who has created the whole universe with a view to the emergence of man who might in due course prove himself worthy of fellowship with Him.

Linguistic analysis has attempted to show that God-statements cannot be treated as empirical. Most probably it is better to take them as psychological statments in which we say most about the person who makes the statements and least about the facts to which they refer. At least this is the view of Freud and Jung concerning religious statements. For instance, dream-statements say a lot concerning the dreamer's complexes and his unsatisfied wishes and much less about the factuality of the dream-content. Similarly, the abusing voice in a delusion expresses more of the mental state of the paranoiac than of the factuality of the abusing voice. God in the same way may be understood more of a psychical entity than a fact. For this reason western theists have ample grounds for regarding Freud and Jung as equally hostile to religion. Of course, Jung in certain quarters is not considered as a foe of religion for the simple reason that he considers religion useful for the promotion of psychological health and he also grants relative reality to religious entities. In comparison, Freud is far more uncompromising with Christian theism. But inspite of this seeming difference, in essentials there is a fundamental similarity between the two thinkers. We shall also show that their reconstruction of religious values follows the same line too. Freud's view concerning the education of man to reality is fundamentally tantamount to Jung's process of individuation in the interest of self-realization.

Freud's Iconoclasm

For Freud monotheism is the highest form of religion where God is

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worshipped as a father. Against this form of theism Freud submits the following observations:

(i) All the proofs given in favour of the existence of God are worthless [1]. Yet the disproportionately intense holding of the groundless belief shows that it is irrational, illusory and neurotic.

(ii) But even a neurotic fear or hope is based on some historical event. Here the historical fact is that God in every case is modelled on the physical father of one's infancy [2]. This can be thus briefly stated.

In the period of infantile helplessness the father is looked upon as a protector against all the unknown dangers of the environment. Even at the adult stage man continues to have the same feeling of helplessness in the face of natural catastrophes and social inequalities. Naturally the infantile image of the protector father pops up from the unconscious and gets projected on to the Father of the Heavens.

(iii) The ontogenetic history of God as an infantile imago of one's Physical father is greatly reinforced by its phylogenetic origin. According to Freud, following the lead of Darwin, in the cradle of civilization man lived in small hordes. Each horde consisted of a number of females presided by a single male. Naturally men as sons had a great deal of admiration for and they sought identification with this primaeval father of the primitive horde. Yet they had hate of him because of their rivalry for the females of the horde.

(iv) God therefore has been patterned on the imago of the physical father of one's individual and racial infancy and is characterised by love and hate of Him. The hate of the beloved and admired father engenders a sense of guilt from which a theist never escapes. Man, according to Freud, has to propitiate this illusory Heavenly Father by his acts of worship, sacrifice and rituals. A priesthood, all down the ages, has perpetuated this tradition by means of forced education of every human generation. Hence, Freud concludes that religion is mere infantilism and God is as illusory as dream-images are. The sooner this mass-illusion disappears, according to Freud; the better it is for the human race.

Jung's Psychologism And Relativism

According to Jung, an individual in the first half of life adapts himself to the outer environment and in doing this evolves an appropriate *persona*. But inspite of being successful in his conscious adjustment to his biological and socio-economic needs of life, very often a gifted individual, usually after the age of forty, begins to lose interest in his erstwhile pursuits. He is caught up as if by a sort of divine restlessness for a new meaning in life. According to Jung, the latent unconscious is beginning to exert its influence on the individual for coming to terms with it. Some individuals go far and some halt on the way after going a little distance only. But any successful sojourn into the unconscious bri-

1 Furture of an Illusion-pp. 49 ff.
2 An Autographical Study-p. 134.

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ngs life and light and to that extent he is said to have religious experience.

According to Jung there are four stages of religious or individual development. The four stages remain subordinate to the sovereign drive in each man by virtue of which he becomes a complete whole by adjusting to the outer environment and by becoming conscious of his unconscious demands. This holistic process is called 'individuation'. At each stage there is an archetypal symbol which one encounters in one's dreams, visions and phantasies. At each stage the individual has to assimilate it by avoiding to fall into its grip. A successful assimilation means that a large tract of the unconscious region has been brought into conscious control, and, correspondingly the libidinal energy hitherto locked up is placed at the disposal of the individual for adjustment. Hence, a successful adjustment to the unconscious archetypes expands and enriches and energises the personality with the result that he braces himself for a further ascent towards the unconscious demands.

The four stages of individuation are SHADOWS, ANIMA-ANIMUS, MANA PERSONALITIES and MANDALA-EXPERIENCE. By assimilating his shadows, the individual conquers the dark and evil side of his psyche. In the same way a successful encounter with anima-animus takes an individual beyond the attraction of sex. The stage of mana-personalities is the typical stage of theism and polytheism in which an individual gets the vision of a god, a prophet or a wise man. Such an experience whenever occurs shakes him from the very depth of his being and is likely to transform him more or less permanently. A vast majority of mortals remain satisfied with the vision. However, a few rare souls dare to proceed further towards mandala-experience. At the last stage the gods are left behind. At this stage one gets the archetypes of a cross, a circle, a trishula, a bowl and so on. This gives one the feeling of attaining a full-orbed self. Here the journey ends. In one sense, at every stage the 'self' is actualized because the self is the centre of one's total psyche which comprises both the Cs and Ucs. A successful assimilation of even the shadows results in reaching a higher centre than that of persona and to that extent the self of the individual is realized, Though this self-realization may be the highest for an individual with a low mentality, yet others with higher mentation have to proceed much further. However, the mandala-experience is the highest and the ultimate process of self-realization.

Religious Experience As A Psychic Fact

First, Jung holds that the Ucs is the seat of religion. This is clear from the fact that a divine vision occurs mostly in dreams which certainly proceed from the Ucs[3]. Again, Shadows, Anima-Animus etc., are all products of the primordial and collective unconscious. Any encounter with them means to be engaged with psychical entities. For Jung religion

3 Psychology and Reason, Collected Works. Vol. 11-pp. 18 ff.

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is a psychological fact, He states that his approach is

"phenomenological, that is, it is concerned with occurences, events, experience, in a word, with facts. Its truth is a fact and not a judgement.Speaking for instance of the motive of the virgin birth, psychology is only concerned with the fact that there is an idea, but it is not concerned whether such an idea is true or false in any other sense."[4]

Jung clarifies this notion of the psychological fact which cannot be verified in any physical way. For instance, one may believe that at one time the river Rhine flowed backwards from its mouth to its source, in the face of empirical evidence to the contrary.

"Beliefs of this kind are psychic facts which cannot be contested and need no proof.

Religious statements are of this type. They refer without exception to things that cannot be established as physical facts. If they did not do this, they would inevitably fall into the category of the natural sciences."[5]

If religion be a matter of psychic fact, then in what manner does this view of Jung differ from that of Freud ? First, Jung holds that religion is essentially a healthy state and is rooted in the very psychological nature of man. In contrast, for Freud religion is essentially a mass neurosis of mankind. Secondly, Jung shows that the god of religion, though a psychic entity, is neither a fiction nor a subjective illusion. In his own way, he explains the objectivity of god in the following manner:

The Objectivity Of God

(a) For Jung, the psyche has as much reality as the outer world.

"It is an almost absurd prejudice to assume that existence can only be physical. As a matter of fact, the only form of existence of which we have immediate knowledge is psychic".[6]

He goes so far as to say that not only the psyche exists, it is existence itself.

(b) Of course, the main reason of Jung's contention is that the psyche is non-individualistic and essentially racial.

"But I am not at all convinced that the unconscious is merely my mind, because the term 'unconscious' means that I am not even conscious of it".[7]

(c) Thirdly, Jung holds the click theory, according to which God, though a psychic entity, is independent of the human will. The archetypal image in the form of a shadow or mana-personality seizes and controls the human subject, who according to Jung, is always rather its victim than its creator.[8]

4. Ibid. p. 6
5. Answer to Job, CW, Vol. 11-p. 360. Also see p. 464
6. CW-Vol. 11-p. 12; also see p 480; CW, Vol. 16-p. 52; Modern man in search of a soul-pp. 187,219
7. CW-Vol. 11-p. 39
8. Ibid. p. 7

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"'Principalities and powers' are always with us; we have no need to create them even if we could. It is merely incumbent on us to choose the master we wish to serve, so that his service shall be our safeguard against being mastered by the 'other' whom we have not chosen*. We do not create 'God', we choose him".[9]

So God remains a 'hidden God' even for Jung, and even in his sense God reveals himself and remains objective to His worshippers. Nevertheless it remains true that the most subjective here is the most objective and the most objective can never go beyond the psyche.

(d) Again, Jung suggests that the idea of God is objective in the Kantian sense according to which a dream that all man dream and must forever dream is not a dream but a reality. Hence that is objective which is more or less universally accepted.

"It(the idea of God)is *psychologically* true in as much as it exists. Psychological existence is subjective in so far as an idea occurs in only one individual. But it is objective in so far as it is established by a society.....by a *consensus gentium*".[10]

But even a psychological process is correlated with some physicalistic event. For instance, a tooth-ache is certainly psychological, but is rooted in some physiological correlate. In the case of tooth-ache we can refer to the inflammed gums or a cavity in a tooth. So even God-experience must have some ontological basis in reference to which it is felt. Jung does think of this possibility. He, however, brushes aside any discussion concerning the extrapsychic reality of God on the ground that the problem is not for psychology but for metaphysics to decide.

".....When (as a psychologist) I speak of 'God', I am speaking of a psychological image. Similarly, the 'self' is a psychological image of human wholeness, and it also is of something transcendental .....Psychology deals with these images only in so far as they come under our experience....."[11]

(e) Lastly, the 'truth' of religion is sought to be established by Jung on purely pragmatic and therapeutic grounds.

"I may allow myself only one criterion for the validity of my interpretation of the dream.....and this is that it works".[12]

Again, he continues :

"If something which seems to me an error shows itself to be more effective than a truth, then I must first follow up the error, for in it lie power and life which I lose if I hold to what seems to me true",[13]

From the above-mentioned statements of Jung, it is clear that he regards theistic entities and theological utterances of theism to be merely

9. Ibid. p. 87

* This will be called a 'demoniac possession'.

10. Ibid-p. 6

11. In a letter to Rev. V. White, 'God and the Unconscious'-p. 256-7

12. Modern man in search of a soul-p. 72, also see p. 74; Vide Psychological Reflections-p. 251 (Kegan Paul. 1953)

13. Modern Man-p. 277, also V. White. 'God and the Unconscious', p. xv

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psychological. This position of Jung is as much anti-theistic as of Freud. In addition to this Jung maintains the non-absoluteness of Christianity, for he adheres to the relativity of all kinds of religious claims. The religious relativity follows from the fact that an individual belongs to various attitudinal and functional types and mental dimensions. Hence, no one religious recipe can satisfy all. What is meat to one is poison to another.

> "The more deeply we penetrate the nature of the psyche, the more the conviction grows upon us that the diversity, the multi-dimensionality of human nature requires the greatest variety of standpoints and methods in order to satisfy the variety of psychic dispositions".[14]

For Jung therefore God can just as well mean Yahweh, Allah, Zeus, Shiva, or Huitzilopochtli [15] and each one of them is true to the person who believes in any one or more of them.

> "I am firmly convinced that a vast number of people belong to the fold of the Catholic Church and nowhere else, because they are most suitably housed there. I am as much persuaded of this as of the fact, which I have myself observed, that a primitive religion is better suited to primitive people than Christianity, which is so incomprehensible to them and so foreign to their blood that they can only ape it in a disgusting way.+ I believe, too, that there must be protestants against the Catholic Church,and also protestants against Protestantism—for the manifestations of the spirit are truly wondrous, and as varied as creation itself."[16]

Not only Jung rejects the Christian claim to the unique and eternal truth, but he most emphatically holds that in the last stage of religious experience which is called Mandala-experience Gods disappear altogether[17]. So when the fullness of religious experience dawns, the theistic religion of Christ, Allah, or Shiva all disappears.

Hence, Jung's views are no less anti-theistic than those of Freud. Further, as theism is considered to be the only possible form of religion, so both Jung and Freud are taken to be opposed to religion. Of course, the views of Freud are far more extreme than those of Jung. Freud looks upon religion as a powerful obstacle in the way of intellectual, moral and social development of the human race.[18] and he pleads for its speedy disappearance.[19] For Freud religion is a harmful illusion.

> "The whole thing is so patently infantile, so incongruous with reality, that to one whose attitude to humanity is friendly it is painful to think that the great majority of mortals will never be able to rise above this view of life."[20]

14. CW, Vol 16-p. 9 also see p. 71
15. Vol. 11-p. 303
16. M.M. S.S.-p.282; see also pp. 136-7
17. CW. Vol. 11-pp. 95ff
18. New Introductory Lectures-pp. 210f also FI-pp. 72. 74
19. FI-pp. 75-76, 86
20. Civilization and its discontents-p. 23

+ Essays on Contemporary Events-p. 21 This is also the view of Radhakrishnan who does not favour conversion.

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For Jung every type of religion is psychologically useful and metaphysically speaking has relative truth in it.

The Religion Of Self-Culture

It is a trite observation that every negation implies an affirmation. True, Jung and Freud do not support western theism. But their rejection is based on some underlying positive view of religion. For Jung the most important form of religion has been practised for countless ages by the Indians. This may be called the religion of the Supreme Spirit. It consists in becoming aware of one's powers and capacities and in realizing them. It is essentially a matter of self-culture and psychologically considered, the religious experience expands the personality and contributes to personal peace and happiness. For Jung religion is largely a subjective affair of an individual[21] and the experience is self-authenticating.

> "Religious experience is absolute; it cannot be disputed. You can only say that you have never had such an experience, whereupon your opponent will reply : 'Sorry, I have'. And there your discussion will come to an end. No matter what the world thinks about religious experience, the one who has it possesses a great treasure, a thing that has become for him a source of life, meaning and beauty, and that has given a new splendour to the world and to mankind. He has *pistis* and peace. Where is the criterion by which you could say that such a life is not legitimate, that such an experience is not valid, and that such *pistis* is mere illusion ?"[22]

The above view of religion is mostly eastern, as Jung himself admits. According to him, the East bases itself upon the 'psychic reality'[23] and commends this attitude to the West[24]. Most probably this does not require any special mention since Jung clearly acknowledges this debt of the East with regard to his theory of self-realisation and the relativity of Gods. Again, like the Vedantins Jung makes a distinction between God-image and the Absolute God[25] and this corresponds to the distinction of the Nirguna and Saguna Brahman. Hence, Jung rejects Christian theism in favour of the religion of Self-realisation.

What about Freud ? Freud too teaches a religion of reason as distinguished from a religion of repressed instincts. None was better acquainted than Freud concerning the feebleness of human intellect in relation to the overwhelming might of passions. But he believes that reason is a power too[26]. The voice of reason may be feeble, but in the long run it makes itself heard.

> "The primacy of the intellect certainly lies in the far, far, but still probably not infinite, distance".[27]

21. Hans Schaer, 'Religion and the cure of souls in Jung's psychology'-p. 98.
22. CW Vol. 11-p. 105
23. Ibid-p: 481
24. Ibid -p. 483f
25. Hans Schaer, Ibid-p. 155
26. Inhibition, Symptoms and Anxiety-pp. 28-29
27. Future of an illusion-p, 93

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The intellect freed from the trammels of instincts, according to Freud, will enable men to be truly educated to reality and this would lead to 'the brotherhood of man and the reduction of suffering'. [28] The life dominated by reason.

> "would prove to be the strongest unifying force among men, and would prepare the way for further unifications".[29]

Life regulated by reason will be free from ecstasy, exhiliration and psychological intoxication. Man educated to reality will realize his helplessness and utter insignificance in the workings of nature. But he will learn to endure things with patience, without self-pity and illusion. Man will learn to submit himself to the inevitable. This is what Freud found in Leonardo.

> "The sentences which contain the deep wisdom of his last years breathe the resignation of the man who submits himself to the laws of nature and expects no alleviation from the kindness or grace of God"[30]

Later, Freud admired this spirit of resignation to the inevitable in the case of his father too.

> "My father knew that he was dying, did not speak about it and retained his composure to the end"[31].

Freud practised the same spirit of resignation when his own end approached him, Jones describes the last scene thus :

> "On September 19, I was sent for to say good-bye to him and called him by name as he dozed. He opened his eyes, recognized me and waved his hand, then dropping it with a highly expressive gesture that conveyed a wealth of meaning, greetings, farewell, resignation... there was no emotionalisim or self-pity, only reality....an impressive and unforgettable scene" [32].

It is for the readers to judge whether such an attitude is religious or not. One thing is certain that this is what the Stoics attempted to achieve and what Spinoza taught and practised as the intellectual love of God. It is essentially a life beyond joys and sorrows and a life of non-attachment which a Jivanmukta or a Nirvanist lives. Hence, Freud too taught a religion of self-culture.

Thus, we conclude that both Jung and Freud have demolished theism in order to make room for a religion of self culture. We trust that a linguistic analysis will reveal self-culture as the true meaning of religious statements.

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28. Future of an illusion-p. 93
29. A philosophy of life, in 'Essays In Philosophy., Edited by H. Peterson-p. 352
30. Leonardo da Vinci-p. 106 (Kegan Paul, 1952)
31. Letters to Fliess-p. 276
32. Sigmund Freud. Vol. III-p. 262

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WHAT IS SUBJECTIVITY–
An existentialistic interpretation

BASANT KUMAR LAL

I think that the basic meaning that the traditional philosophers have given to the term subjective is wrong. The 'subject', according to them, is more or less an idea-an essence. But there is an inherent difficulty in conceiving the subject in that manner. An idea does not exist, it is an adjectival always in need of a substantive with which it has to be attached. Now, if the subject becomes an idea, it loses its substantive character. Therefore the subject is the existing subject and not the idea-subject or the thinking subject. The traditionalists do not realize this, and therefore they fail to make a distinction between 'subjectivism' and 'subjectivity'.

To be able to appreciate this let us examine the meaning of the term 'subject' itself. The subject is something different from the object, the object is an entity of which the subject has an awareness. The object is the 'known' and the subject is the 'knower'; this means that 'man' is the subject because he is the knower. Moreover, the subject is he who thinks, but man alone can think; thought, in fact, is his monopoly. This also shows that man is the subject. This is the most obvious meaning of the term 'subject', because a stone or a plant or an animal is never described as a subject. Subjectivity therefore must be a fact of the life of the individual man.

We can arrive at the same conclusion in a different way also. No body would deny that the basic fact of the universe is 'Existence'. But what is existence ? It is not to be a block of wood or a mass of rock. To exist means to exist with the full consciousness of existence. Sartre says, 'Man is indeed a project.....man is before all else something which propels itself towards a future and is aware that it is doing so.[1] In fact even he is not existent to begin with; to begin with he is nothing; "man will only attain existence when he is what he proposes to be".[2] Now if in the true sense of the term 'existence' man alone is existent and if subject means man, then subjectivity must have some direct relationship with the existing man. In that case it will be free from the charge of subjectivism also because subjectivism creeps into thought only when the centre of thinking is the 'idea man' and not the 'existent man'.

It is clear, now that I am trying to give an existentialistic meaning to subjectivity. For this it would be necessary to examine the views of

1. Sartre--'Existentialism and Humanism' P. 23
2. Ibid-28

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Kierkegaard and Sartre who have thought much upon this problem. Both of them agree in saying that subjectivity can be understood only by relating it to the existent man; the difference between the two is that whereas Kierkegaard relates it to God, Sartre keeps it confined to man.

Kierkegaard says, Truth is Subjectivity"[3]. This might give us the impression that subjectivity is a more fundamental and simpler fact than truth and that truth can be grasped only by relating it to subjectivity.[4] But Kierkegaard takes them almost as identical expressions and explains them together.

It must first be realized that Kierkegaard makes a distinction between the thinking ego and the existing ego. Truth can never be grasped by the former. "Reality can never be conceived"[5] If the thinking ego gives some idea of reality it is a thought-reality and not the actual reality. Truth can never be made an object of inspection. In order to grasp truth one must feel it, one must live it. "I do not know truth except when it becomes life in me."[6] The objective or the conceptual approach makes a distinction between the subject and the object. But we can never know truth by separating ourselves from it, or by artificially creating a division between ourselves and truth; in order to grasp it we must relate ourselves to it. That is what is meant by the 'existential saying' that truth is not a matter of understanding, but of existing;—and that is subjectivity.

This needs a further clarification. If truth can be grasped only by living by existing, then we can say that truth is inwardness. It is not, then thrown down to us from nowhere, it is not pitted against our consciousness from unknown regions, it is felt, lived, inwardly realized. It needs an intensity of feeling to realize it. Therefore it is inwardness and therefore it is subjectivity.

Kierkegaard has tried to define truth in the following manner—"an objective uncertainty held fast in an appropiation-process of the most passionate inwardness is the truth"[7] I shall try to illustrate it with one of the most favourite examples of Kierkegaard-God. As the definition suggests, the subject, in its attempt at grasping truth, will objectively get only uncertainty and not the truth. This uncertainty will rouse in him an intense inwardness, a deep passion—a strong feeling; and truth will be grasped only when the objective uncertainty is made inward by the intense feeling. for example, I contemplate on nature in order to find God. All the evidences that I gather in its support together with the evidences against its existence excite in me an anxiety-an objective uncertainty. This is no knowledge of God. But this is the very reason why deep feelings are

3. Kierkegaard-Concluding Unscientific Postscript--Chapter 2
4. In the C.U.P. he first explains as to what is being subjective and in the next section he explains truth and subjectivity.
5. Kierkegaard--Journal-54
6. Kierkegaard-'Training in Christianity'-47
7. Concluding unscientific Post-Script-182

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roused in me and the inwardness becomes as intense as it is. This inwardness would ultimately give me a realization of God.Thus, this inwardness or subjectivity is capable of giving us truth, in fact it itself is the truth.

That subjectivity is this inwardness can be shown to be a fact in a different way also. A direct and objective relationship between one spiritual being and another or between one individual man and God is unthinkable. If such a relationship is assumed to be possible, it means that one of the parties has ceased to be a spirit. Truth is not accepted at once or directly, the individual man must first realize it in his inwardness and then communicate.

Thus we see that subjectivity, for Kierkegaard, is the inwardness of the individual man. He does not suggest that the world should be patterned in accordance with this inwardness, that would have been subjecctivism. He says that the individual man would realize every thing by his inwardness, by intense passion and feeling, by being subjective.

Had Kierkegaard stopped here, his poition would not have been very different from the atheistic existentialists. But he does not stop here. For him God is not merely an illustration of subjectivity; God is the core of his principle of subjectivity. James Collins,a reputed American scholar on Kierkegaard says,—"in attempting to go beyond the epistemological dilemma between Idealism,and Empiricim, he gave a moral and religious meaning to subjectivity.[8] Kierkegaard relates subjectivity to truth, and according to him truth must be ethico-religious. Perhaps he has a reason for saying this. Subjectivity centres round man. Man alone is God-conscious. No other creature ever cocerns itself with or even cares for God. This difference appears to Kierkgaard as significant, and he atonce relates subjectivity to God,he atonce comes to the conclusion that Man's subjecjvity is his inwardness with respect to ethico-religious life. This makes him feel that the problem of God and Truth is a 'life problem' and that therefore it is useless to attempt to prove God. His existence, thus, can only be realized,it can not be proved.That is why he says that,'Faith is the highest form of subjectivity"[9]. H.V. Martin points out that according to Kierkegaard "God only exists for an existing man"[10]—in his subjectivity. "when an existing individual has not got faith, God is not".[11] Thus we can conclude that according to Kierkegaard subjectivity is man's inwardness in relation to God and religious life.

Even though Kierkegaard description of subjectivity, as outlined above, contains important elements of truth, it can not be accepted as entirely valid because of certain deviations that he claims unconsiously made from his originally declared thesis. Firstly, although theoretically he claims that subjectivity has to circle round man, actually he

8. James Collins-The Mind of Kierkegaard-141
9. Concluding unscientific Post-script-118
10. Kierkegaard. the meloncholy Dane by H.V, Martin-47
11. Journal-605

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makes it revolve round God. I have indicated earlier the possible reason for this—it is so perhaps because God—consciousness is a peculiarity of man alone. But that is no reason why emphasis should shift from Man to God. Man is in the possession of so many other peculiarities also—they should only be used as illustrations, they can not be the definition of subjectivity. Secondly, such an analysis of subjectivity would ultimately make it once again an idea. The moment we transcend man's individual inwardness and relate it to God, the danger is that this inwardness would also become an idea. I accept that Kierkegaard tries his best to emphasise upon the existential nature of this inwardness—upon the actual inner subjectivity of the existing individual, but that the introduction of God into this scheme does create the possibility of a change of the existen tial character of subjectivity into an ideal or existentialistic character—can not be denied.

Now let us examine Sartre's views on subjectivity. As I have pointed out previously Sartre links subjectivity directly with existing man. He has to do this because he does not believe in God. In a scheme of things where man is the centre of all thinking nothing should be interpreted in terms of a belief in God. Moreover, belief in God means to belive in a permanent possibillty of all explanations and thereby to save oneself from the trouble of explaining things in terms of existing facts. Sartre claims that subjectivity should be pure and therefore he makes his start with one presupposition—that God does not exist. He has to make that presupposition : for, so long as God is maintained, man would throw all responsibilities on Him and would do nothing to discover himself.

Now "if God does not exist, there is atleast one being whose existence comes before its essence, a being which exists before it can be defined by any conception of it[12]. There is no God and therefore there is no human nature that has been preconceived or pre-determined. As such initially man is nothing, but he propels himself towards a future, man attains existence only when he becomes what he proposes to become. Now it can be safely said that that man is his own subjective life—his subjectivity. He himself is making himself, he will become only that which he has decided for himself to become. That is his subjectivity. "Man is indeed a project which possesses a subjective life instead of being a kind of mass or a fungus or a couli flower."[13]

If we examine the above assertion of Sartre we find that it has certain implications : Firstly it implies freedom, secondly it implies that there is a responsibility on man's shoulders and thirdly it implies that man can never go beyond human subjectivity. These three explain subjectivity clearly. I shall try to explain them.

The moment we accept that man makes himself or that man is whatever he wills himself to be, we accept also that man is free. For not being

12. Existentialism and Humanism-28
13. Ibid-28

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determined by a previously given essence, man is free and exists only to the exent he creates himself. That is why Sartre says "Man is condemned to be free."[14] Man's freedom, therefore, is one of the main characteristics of man's subjectivity. In this subjective life—in his existence, he is aware of his freedom.

This freedom carries with it a responsibility. The consciousness of freedom "betrays it self by the double sense of anguish and responsibility.[15] As I am free, I am responsible for everything—"as deeplly responsible for the war as if I had declared it myself.[16] This responsibility should not be understood in its usual sense. This also, like everything else, is inexplicable and nauseating, and yet it is something which man is somehow carrying and is conscious of in his subjectivity. Its peculiarity is that man feels that this responsibility is not merely a responsibility to oneself, it is a responsibility to others also. In freely creating myself I am aware, in my subjectivity, that I am creating the man that I want to be and therefore the man that I would want others to be also. In doing anything I fix up almost an ideal for others. As such, our responsibility concerns mankind as a whole. "In fashioning myself I fashion man."[17]

The third characterstic of subjectivity, which is by far the the most fundamental and which gives value to the other two characters, is that man can never pass beyond human subjectivity. When Sartre talks about freedom and responsibility, he does not treat them in an objective manner. He says that every man has a feeling of this sort—that all these are aspects of his inner life, he can not help having these feelings. Every individual will have these feelings in his own way, and he must have these. His life, his existence, therefore, is nothing but his subjectivity,

It is only in this sense that Sartrian important expressions like anguish, nausea, abondonment, despair, anxiety, become significant. For example, what is anguish ? It is an illustration of man's subjectivity. Man is always aware of his deep responsibilities specially because his decisions involve the whole of humanity. This consciousness, combined with the consciousness of the fact that there is no God as a permanent excuse for every lapse on the part of man, will create in his subjective life-an anguish. P. Foulqui, in trying to explain Sartre's anguish, says, "to be sure he has good reason for anguish, especially when we consider that in making his own choice he is legislating for the whole world.[18] Stern illustrating from the various novels of Sartre, has very ably tried to show that this subjectivity of the existent individual is the real individual and that anguish, nausea etc are aspects of this subjectivity.[19] Thus, according to Sartre subjectivity is the man—the living existent man. Apart from subjectivity man is not.

14. Being and Nothingness 515
15. Ibid-515
16. Ibid-641
17. Existentialism and Humanism-30
18. Boulquies existentialist philosophy-72
19. Stern's-Sartre, his philosophy and Psychoanalysis-Chapter III

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Sartre arrives at the same conclusions in a different way also on the basis of a psychological analysis of man. What for example, is man's original project ? Freud say, "Libido, a love-principle, a sex urge".Sartre has illustrated his psychology with abandant examples of sex,but he does not agree with Freud in saying that man's fundamental choice is sex. He says that man's original project is a project of existence—that it is subjectivity. Love or sex might be one of the most convenient illustrations of subjectivity, but man is not sex, he is subjectivity. I shall try to illustrate it with the help of two Sartrian examples.Why do we not like to be seen in the state of nudity ? Why should persons of the same sex feel ashamed in undressing even in the presence of other persons of the same sex? Body symbolizes objectivity without defence and individuals are ashamed because, in the state of nudity,they are not being seen in their true perspective of subjectivity. "To dress oneself means to negate the object character of our body—to claim the right to see without being seen, the right to be mere subject"[20]—Let us,now take the example of love.If love meant a desire to possess the partner's body, its satisfaction would have been quite easy. But it is not so. Even if I possess the partner's body, I am still alone. Therefore,the lover does not want to possess the object of his love in the way in which any body, for example. possesses a stick. He wants to possess it as a subject—as a living freedom; in that case even the partner's body would become identical with partner's freedom and "in thus touching the body the lover would be touching the other self's subjectivity".[21] Thus, these examples of Sartre show that according to him Man's existence is nothing but subjectivity.

If we compare Sartre's position with Kierkegaard's we find that Sartre's subjectivity and Kierkegaard's inwardness are not very different-atleast till they are elaborated. For Kierkegaard as well as for Sartre subjectivity is man's inner life. But both corrupt subjectivity when they try to determine its dimensions. Kierkegaard elaborated it in terms of God and Sartre, also, tried to measure the dimensions of subjectivity and in doing so defeated the whole purpose itself. In trying to concretise subjectivity he almost universalises it. He talks of subjectivity and yet he tries to fix up a course in which every individual subjectivity has to develop. Freedom, responsibility, anguish, anxiety nausea and all other similar expressions in spite of Sartre's best efforts tend to be universal. He says that everybody is free and yet he adds that everybody must have an anguish. He says that every body acts in accordance with his own choice and yet he adds that every one must have a feeling of responsibility. In his ethics he says that everybody sets up his course of action by individual choice and yet, almost like Kant, he says that every individual faces the question, 'what would happen if everybody does the same' ? I do not suggest that Sartre has actually universalised these or that convenient concepts of these expressions can be made. His effort for maintaining the in-

20. Stern-Sartre, his Philosophy and Psychoanalysis 126
21. Being and Nothingness-463

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dividuality of subjectivity is admirable, but I submit that the scope of this confusion is very much there. Why should this confusion be allowed to grow around subjectivity—especially when we are conscious of it from beforehand ? Let us, therefore, freely and unreservedly keep subjectivity as pure subjectivity. We can do it, and we can do it merely by stopping deliberations at elaborating subjectivity.Subjectivity is subjectivity and hence can not be elaborated in terms of any universal significances. We can finally stop at the statement that man's existence is subjectivity and just that. There is no logical inconsistency in it. I can very legitimately say that subjectivity is the basic fact of every man's life. Whatever man does—whatever decisions he takes,which others might followor which they might not follow is a decision of his individual subjectivity, and therefore taken in his own way. I shall try to illustrate my point of view with the help of one example. There is a man—'A'. What is his subjectivity ? Let us suppose that he has a particular view with regard to marriage and married life. His view is a direct result of the type of life that he has led and of the experiences that he has been able to gather. The circumstances in which he was born,the environment through which he grew up, his family traditions, the types of associations that he made and the conjugal life that he has been leading—all these are his experiences, all these constitute important aspects of his life. He broods over them in his inner life, forms his views, has a conviction that his views are right and goes even to the extent of advising others accordingly. Is this not a subjective existence—a life being lived inwardly ? Others might not agree with him again because they have their own inner lives,because they have to think for themselves in order to arrive at a decision. One peculiarity of this is that he has a strange conviction about the truthfulness of his beliefs; while advising others he would talk with a profoundity which only the seers of truth can command. This conviction is born out of his subjectivity. At a particular moment an individual is nothing but an organization of a number of such views-and therefore nothing but subjectivity. Why can't two individuals be exactly alike ? Why must even the twins have their differences ? That is so because man is nothing but subjectivity.

Now, we must stop. Any step ahead of this would be going against facts and would take away from subjectivity its basic character. I admit that such a view is almost an individualistic view of man. But that is a fact—a psychological fact. This individualism, however,does not suggest selfishness; a man may become an utilitarian, but he would do so only after taking a decision in his inner life, only after being propelled, so to say, by his subjectivity. Such a view is not anthropomorphism also, because this view does not give a metaphysical scheme of the universe with man as its only inhabitant. It is a view on man and therefore the question of anthropomorphism does not arise at all. Therefore I conclude that subjectivtiy is the life of the existent individual man; Subjectivity is the man.

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EDUCATION, SCIENCE AND SOCIAL COMPLEXITY

HENRY WINTHROP

The Dilemma

THE world in this, the seventh decade of the twentieth century, is providing a more and more difficult milieu for the average man to adjust to. It is becoming increasingly questionable whether John Doe is in a position to grapple with the changes produced in his own life by the artifacts of his own creation. New physical inventions, new social forms, new social legislation, new cultural themes, new devices of trade and sovereignty—these and much else that is novel, interact in ways which modern man could hardly have presaged. One after another national and international crises and catastrophes well up as consequences of the haphazard way in which man has planned his own ecology. These are tinkered with likewise in some haphazard fashion and a few years pass and the cure is found to have been worse than the social disease, itself. The ferment of change produced by man's own institutional innovations creates unforeseen complexities which he, himself, finds it difficult to understand. Yet without an understanding of this increasing social complexity it will be difficult for modern man to set his house in order.

Almost all of the growing social complexity of our time is the result of a large number of continuously operating factors whose weight in producing our modern Pandora's Box of troubles is increasing all the time. No catalogue of these factors can pretend to be complete but among the weightier ones are a few which merit our attention. I shall make the effort at this point to state these as I see them, without elaboration or exposition.[1] The impact of science, technology and invention on our lives. [2]. The invention of new institutions and the passage of new social legislation which attempt to deal with such impacts by cushioning the initial dislocation they produce. [3]. The changes in the trade complementarity between nations as a result of different endowments in resources which have shifted their status from potentially exploitable, to actually utilizable, as the result of new and commercially feasible processes of technology. [4]. Changes in population in relation to actually tapped resources and to locally existing attitudes towards work, place and people all of which help to determine whether an increase in GNP per capita is feasible within a given area. [5]. The rapidity with which local forms of education succeed or fail to inculcate respect for and the appreciation and use of scientific thought-

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ways and the scientific method and attitude, all of which are so necessary for understanding, analyzing and changing the undesirable aspects of the human condition. [6]. The inability of intellectuals who have any influence upon centers of power and privilege to make clear the social contexts for which the two great stances towards life—objectivism and existentialism—are most appropriate and their inability to produce on any large scale, either of these significant attitudes among populations which are in transition from the old to the new. [7]. The lack of firm techniques for forecasting the social consequences of large-scale, social decision-making, chiefly because no group of decision-makers can control or predict new social factors or, as the economist likes to phrase it, new **exogenous variables** which may become part of the ongoing social picture in the short-run following the decision-making.

There are several factors sufficiently unique to merit separate statement. They are unique in that they are more relevant to the impasse created by modern, social complexity than the previous seven mentioned. Among these I would list the following. [8]. The breakdowns in social communication created by the **adminisitrative distance** inherent in bureaucracy and the resulting impossibility of any decision-maker or group of decision-makers being able to obtain an accurate picture of the total flow relations of all forms of social activity and their consequences, which will yield a responsible basis for administrative judgment applicable over wide geographical areas. [9]. The absence of any official corps of practical thinkers whose task is to examine technical inventions and research findings in all disciplines, for possible utilization of socially beneficial discoveries which would not be commercially profitable. [10]. The limited and marginal use in social and industrial planning, of the techniques now available for a revolution in social and industrial organization and expectations, namely, techniques in such fields as cybernetics, data and information processing technologies, computer and simulation techniques, and the newer methods of social, industrial and economic analysis, such as industrial location analysis, operations research, input-output analysis and linear programming techniques. [11]. The lack of any vigorous body of thinking devoted to the analysis of the requirements of potential, Western, decentralized, intentional communities, that is, thinking which will reject a retreat from the modern age and refuse to set the clock back but will aim, instead, at decentralized, intentional communities that propose to take advantage of modern science and technology, the revolution of rising expectations, the accelerating growth rate of modern knowledge in all fields, innovatious in education and proposed forms of social pluralism—all this without sacrificing the best element of the democration tradition, namely, a balance between freedom, authority, social responsibility and individuality. [12]. The absence of almost all effort to reestablish genuine face-to-face situations among social atoms lost amidst our current social and industrial complexes, so as to achieve a sense of orga-

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nic relatedness to the modern residential community (not metropolis) which is only possible where such communities are of manageable size. This clearly can be done only where social activities and social returns are to human scale and this is likely to be achieved only when the citizen can be made to feel a sense of participation in community development, community choice of values, etc., rather than made to feel that he or she is a **social atom** interchangeable with other social atoms.

As I have already remarked, it is beyond the power of any man, no matter how erudite and perceptive, to begin to give a complete picture of the factors which are basically responsible for the increasing social complexity of our age. I do believe, however, that the factors cited here are certainly among those most central to the production of that social complexity of which we are today distinctly aware.

The world as a whole but, even more significantly, each national community, could profit considerably if it possessed a good measure of the social complexity which its citizenry faced and within which social complexity those same citizens were called upon to discuss, debate and vote upon issues and problems which represented continual social and political strain. Considering that current forms of democracy, in addition to the vote, extend to the citizen the privilege of making use of such devices as the initiative, referendum and recall and that the body of active citizens who avail themselves of these devices do so only in a context where disagreement has been reached either in the **understanding** or **interpretation** of the pressing issues and problems of the community or in the matter of their proper solution, an understanding of the complexity of the issues to be faced would be helpful on several counts. First, it would give the serious and mature citizen some idea of the homework he had to do before he could participate intelligently in the democratic process. Second, if the social complexity of the democratic milieu in which we had to grovern ourselves were known and if there is any relationship between intellectual capacity and range of information on the one hand, and the capacity to comprehend genuinely the interrelated issues and problems within a cultural milieu of a given degree of social complexity, on the other hand, an advantge is gained. This advantage lies in the fact that we can know in advance that percentage of the citizenery can meaningfully participate in the democratic process because they are in fact able to grasp the bioecological and institutional realities of their daily existence. Where social welfare is both measurable and capable of being either maximized or optimized, as has been ably demonstrated by Rothenberg [15]., **an index of social complexity,** as it were, would be of maximum help in trying to achieve such maximum or optimum welfare. It would furnish us with some nation of the number of citizens who could responsibly and mutually be expected to be able to put their heads together not only to deal intelligently with the issues faced by the body politic but also to understand the factors which generate the grave problems

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before us today—factors such as the twelve we have so briefly mentioned already.

Unfortunately no sociologist has as yet dedicated himself, so far as I know,to the construction of such an **index of social complexity.** It is to be understood, of course, that such an index would have to be some sort of **composite measure.** Operational definitions of complexity would have to be furnished for each separate **type** of social phenomenon,social process or social difficulty which it was felt **consensually** would have to be included in the composite.These definitions would vary with the context involved, the techniques for measuring the different **types** of complexity involved would likewise vary and the **weights** attached to the separate component measures of complexity entering into the composite index would also vary. Methods for determining these weights and for properly aggregating the component measures most judiciously and usefully, would present a separate set of problems. But considerations such as these are methodological difficulties in **principle** only, far from insuperable, and do not differ in any way from similar considerations which have entered into other types of social measurement. Nor is it to be denied that more than one type of index of this nature could in principle, be constructed. Once constructed,the fruitfulness of such an index in connection with the possible uses we have emphasized above, can be exploited so as to determine the extent to which the citizen **can truly participate meaningfully in the democratic process.**

Let the reader imagine that such a reliable index has already been developed.Then for **one** proper and significant use of this index we need to make only one assumption,namely,that for some time to come the distribution of human intelligence is likely to remain what it is today. This assumes a frequency distribution of intelligence quotients which run roughly from zero to some figure in the neighborhood of 200. If there is a relationship between intelligence and the degree of social complexity which may be grasped, that is to say, if the degree of social complexity which is to be understood depends upon a minimum,critical IQ level,then it becomes possible **at any time** to determine the absolute numbers and percentage of the total, eligible, voting population which is **theoretically** disfranchised from the possibility of intelligent participation in the democratic process or, at least, from intelligent participation in the solution of a given issue. This theoretical disfranchisement in terms of intellectual qualifications says nothing, of course, either about the willingness of the citizen to participate or his good intentions and altruistic stance towards his fellow citizens and their problems. This predicted percentage disfranchisement rests on the fact that there would be little difficulty in establishing empirically a positive correlation between a critically needed minimum IQ and measures of social complexity for any given issue or problem. Such a correlation would clearly justify the assertion that any community which arrives at the consensus conviction that its problems

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can properly be grasped and dealt with only by those endowed with a given,minimum critical IQ or better,is equally in a position to assert that those who fall below this minimum cannot adequately participate meaningfully in democratic processes and problems. The presence of a critical minimum implies that the further below this critical minimum an individual's intellectual capacity falls, the less adequate he or she is to deal with the social complexity of modern life.

The Consequences

Let us now suppose that one or more indices of social complexity have been constructed and made available to any community, democratic or otherwise. In the light of the institutional and technological realities of modern society and extrapolating recent trends into the future—a not unreasonable procedure in this context—what is likely to be the nature of the mathematical curve describing the change of such an index with time? I venture to suggest that the expected growth curve will not be linear but exponential in nature. This is obviously equivalent to asserting that, for any arbitrary time interval of measurement, the increases in social complexity will, themselves, be getting larger and larger in successive units of the time interval chosen for measurement. This is a reasonable expectation since it is recognized that knowledge in general is now doubling every ten years and that equal, if not greater, rates of acceleration are occurring just for science and technology alone. If we assume that the complexity of our social issues and problems will be proportional to these growth rates—since the periods between the discovery and application of new knowledge are now growing smaller with the passage of time—we can expect the difficulties which attend the average man's efforts to wrestle with the concerns of his time, to be aggravated. Inasmuch as the effects of the applications of new science and technology tend to destabilize already achieved social equilibria and inasmuch as political, social and legal institutional changes are instituted to recapture such lost equilibria—albeit on a different basis—we would expect an understanding of proposed new measures for restoring equilibrium, to be more difficult to attain. This, of course, is only another way of saying that the issues and problems with which we shall have to deal will grow more complex with the passing of time.

However, it is not to be expected that the change in an index of social complexity will be directly proportional to the changes in the rates of acceleration of new knowledge. Human effort to restore lost equilibria will tend to simplify the effects of the impact of new knowledge but the simplification achieved will rarely leave the complexity of any problem exactly the same as it was before. To some degree it will have grown more complex. All of these considerations can then be summed up by saying that in any society which permits an element of decision and choice for the average citizen—and clearly enough this is the major pristine ideal of democracy—we can expect that it will become more and more

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difficult for the citizen to understand the problems and issues on which he is expected to exercise that choice. This will have to be true if our assumption is sound that the social complexity of our lives will increase with the passage of time, regardless of whether a trend line for an index of social complexity is exponential or not. A *fortiori* this is a reasonable assumption if the present do-nothing attitude continues, concerning the growing difficulty of comprehending social change.

We must then relate human intellectual capacity to the growing social complexity of this not-so-distant human ecology. The phrase "intellectual capacity" can mean different things to different people but I am using it here to refer to the well-known **intelligence quotient**. This is not because I believe that no other operational definition of this concept can be given which is superior to the concept of the IQ. Rather it is because no other has been given so that the IQ is simply the best, even if quite crude, measure, to date of intellectual capacity. Using the IQ then as a rough measure of intellectual capacity we require **only one assumption** in order to relate measures of IQ to an **index of social complexity** which we shall hereinafter refer to as the ISC. That assumption is this : **any problem or issue of a given degree of social complexity requires in principle a critical, minimum IQ for its complete comprehension**. This is certainly the case for some traditional subject matter in modern education, e. g., plane geometry, latin or chemistry, and the evidence is substantial in this connection. The difficulties which students at or below a given IQ level have in these subjects, are due essentially to the difficulty inherent in the subject matter, itself, and this will be true even when such material is presented by excellent teachers using **optimum** pedagogical methods. In practise, a critical minimum required for given difficult subject matter, will be found to vary slightly, but this variation really reflects a deficiency of the test yardstick rather than an invalidity of our underlying assumption. That assumption really asserts that there is a one-to-one correspondence between a given level of complexity of subject matter, where that complexity is accurately measurable, and a minimum IQ needed to deal with that level of complexity, where the IQ is accurately measurable. Those familiar with the nature of intelligence testing theory and construction know that the practical difficulty of assigning a fixed IQ to any single individual is due to variation in results. This variation arises both from the fact that different tests measure somewhat different things and the same test given many times has inescapable error variance. For reasons such as these, we have to think of a minimum, critical IQ as an average of several values over a small range. In spite of such variation our assumption is sufficiently heuristic for both practical as well as theoretical purposes. In the light then of this assumption, the relation between the IQ and the ISC can be brought out via Figures 1(a) through 1 (e). Although these figures oversimplify the relationship between IQ and the ISC—a relationship which must be emphasized for a participant democracy—they

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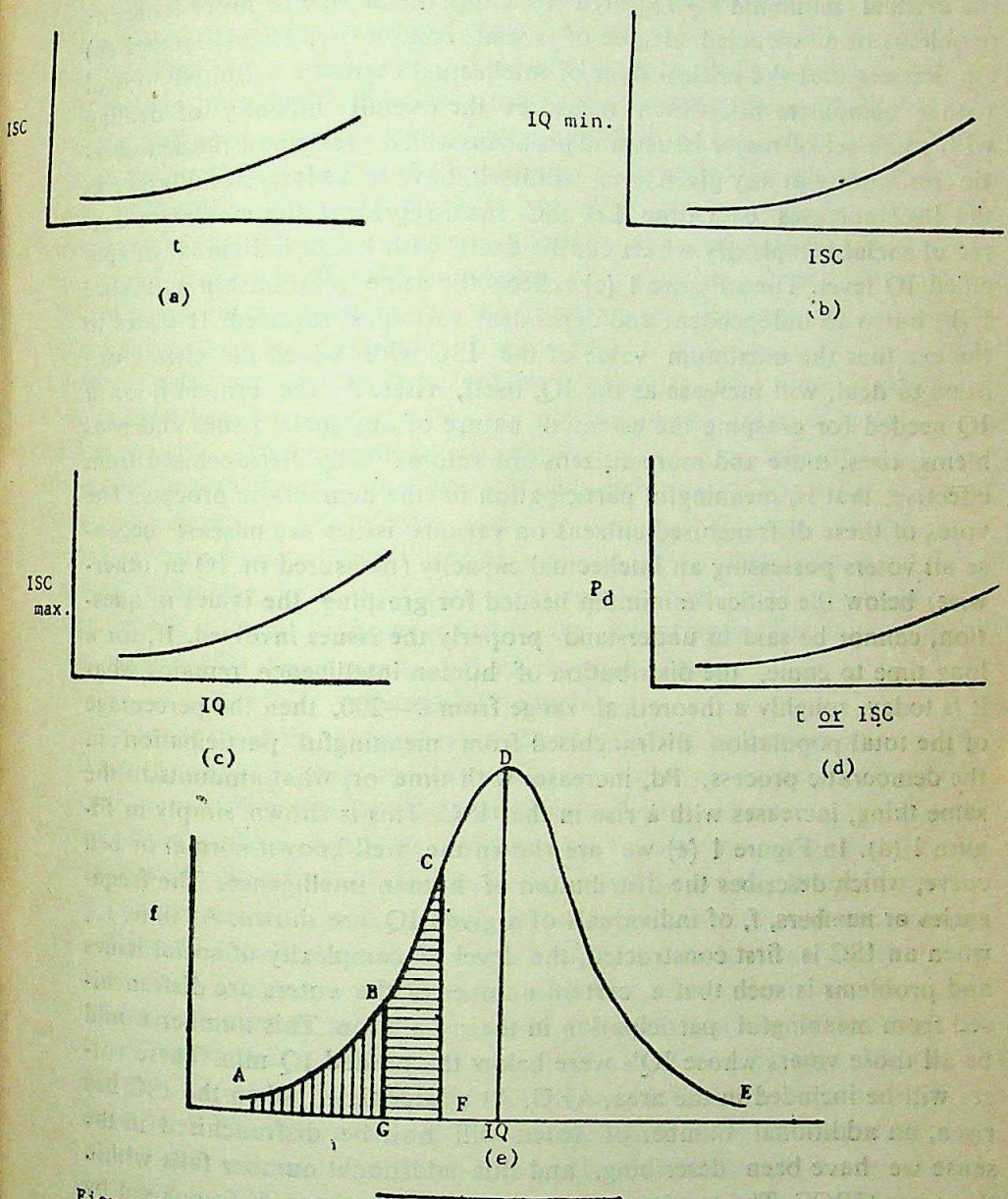


Figure 1. Diagrammatic representation of the relationships among such variables as the intelligence quotient, the index of social complexity, the degree of political disfranchisement and the passage of time.

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do bring out the essential considerations involved.

Figure 1 (a) emphasizes, of course, the fact that the values of the ISC can be expected to increase with time. Let IQ min. designate the **the critical minimum IQ** required to comprehend one or more issues or problems of a specified degree of social complexity. Then Figure 1 (b) emphasizes that the **critical floor** of intellectual capacity required to deal with a **composite** ISC which measures the overall difficulty of dealing with some set of major issues and problems which press upon the democratic community at any given time, will,itself, have to be larger and larger as the ISC increases over time. Let ISC max. represent the **maximum degree of social complexity** which can be dealt with by an individual of specified IQ level. Then Figure 1 (c) reflects the same relationship as Figure 1 (b) but with independent and dependent variables reversed. It states to the eye that the maximum value of the ISC with which the citizen can hope to deal, will increase as the IQ, itself, rises. As the critical floor of IQ needed for grasping the essential nature of our social issues and problems, rises, more and more citizens are automatically disfranchised from effective, that is, meaningful participation in the democratic process. The votes of these disfranchised citizens on various issues are **miscast** because all voters possessing an intellectual capacity (measured in IQ or otherwise) below the critical minimum needed for grasping the issues in question, cannot be said to understand properly the issues involved. If, for a long time to come, the distribution of human intelligence remains what it is today, roughly a theoretical range from 0—200, then the percentage of the total population disfranchised from meaningful participation in the democratic process, Pd, increases with time or, what amounts to the same thing, increases with a rise in the ISC. This is shown simply in Figure 1 (d). In Figure 1 (e) we are shown the well-known normal or bell curve, which describes the distribution of human intelligence. The **frequencies or numbers, f,** of individuals of a given IQ, are shown. At time, t_0, when an ISC is first constructed, the level of complexity of social issues and problems is such that a certain number of the voters are disfranchised from meaningful participation in their solution. This number would be all those voters whose IQ's were below the needed IQ min. These voters will be included in the area, ABG. At a later time, when the ISC has risen, an additional number of voters will now be disfranchised in the sense we have been describing, and this additional number falls within the area, GBCF. The total number who will have been disfranchised by this time will fall, of course, under the area, ACF.

Clearly enough if the ISC were to increase with time, theoretically a larger and larger percentage of our population would fail to participate intelligently in the democratic process. Long before this could happen there would be enough popular revulsion over the political and civic bewilderment which followed increasing complexity, to create a demand that something be done about it. Quite obviously it would be absurd to

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allow the process of disfranchisement to go to completion. The point at which this revulsion would set in is, of course, unpredictable. One can venture the guess, however, that it is likely to occur, when the decisions of controllers in a highly centralized body politic, cannot be made clear to an electorate which put them into office in the first place. This, itself, is likely to happen when there are too few intermediary human channels to provide the effective volume of communication which would be required to convey, if only in oversimplified, dramatic and popular form, the complex nature of the problems faced by the citizen. Social and political instability, I think, is bound to result when the ratio of competent decision-makers to controllees in the community-at-large, is too small to provide effective translation of the decision making process. There is no current sociological theory which will provide us with any ideas as to what the magnitude of such critical ratios would have to be before destabilization occurred. There is likewise no type of research along these lines in either sociology or politcal science, that is to say, no effort to arrive at such ratios in community studies. This may be because community breakdown in the sense of disfranchisement has never as yet been of concern. It may likewise be due to the possibility that community breakdowns of this political type have not as yet occurred. Such breakdowns apparently lie in the future. But even though such breakdowns may only be a threat in the near future, the importance of trying to prevent them before they occur is, I think, beyond question.

Types of Solution

In order to avoid the impasse to the functioning of democracy, which increasing social complexity threatens, we have to consider possible alternatives which will head off political meaningless. There are probably many avenues which democracy will be able to take to avoid the dilemma of well-nigh universal disfranchisement which would result if man were to allow his own social ecology to become increasingly more complex. I should like to discuss only a few of these alternatives here. All solutions of the dilemma will be either of a long-term nature or short-term nature. Inasmuch as the long-term type of solution will always appear "impractical" to men who have no sense of the urgency of the problem we are trying to describe, we shall not deal with that type of solution here. The long-term solution is one which assumes that the degree of political simplification open to a civilized, democratic community is limited in the long run and that, for this reason, whatever measures are taken will have to be novel and non-gradualistic in nature.

Furthermore, since it is long-haired in nature it would be regarded by "practical" men who wish to concern themselves only with familiar possibilities, as out of the question. The long-term solution is at present only a technical possibility. I am referring to techniques for raising the mean IQ of a population through genetic controls and by the same type of biological control or guidance improve whatever hereditary aptitudes

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can be definitely shown to be related to improved data-processing on the part of human beings. It is conceivable that such techniques may become established over the next few hundred or few thousand years, provided required changes in current moral outlook occur that will permit the exploitation of these technical possibilities among human beings. Clearly a population possessing a considerable number of individuals with an IQ of 170 or higher, may be able to deal with the increasing social complexity which future human communities face. This is a point sharply emphasized by Platt([12]) in a recent article which has aroused wide interest.

Optimists in this connection are not rare. Rostand ([14]), who does not apparently believe in the reality of the nightmare possibilities envisaged by Huxley ([5],[6]) in two famous volumes, is a biologist whose restrained enthusiasm in this connection is easily discernible. The paleontologist, Simpson ([16]), is another firm believer in the social need for genetic improvement and control, in relation to the increasing social complexity of modern life. Even so cautious a scientist as Darlington ([3]) takes a clear position which indicates optimism in the use of biological controls. This is most evident in his own words.

> "...modern governments take less care for posterity than did their predecessors in antiquity. Governments which provide us with education have forgotten that only our parents can provide us with the ability to profit by it. There is indeed much evidence of a genetic component in the survival of nations. The nation which takes most serious thought for its own genetical future is, therefore, most likely to have a future." (pp. 8-9)

There are many other figures, too numerous to mention here, who advocate the long-term solution to the problem of increasing social complexity because they really believe it is the only practical one fundamentally.

I do not, however, wish to convert the mention of long-term possibilities for dealing with increasing social complexity in the modern world, into an argument over the feasibility or lack of it, which is inherent in any form of biological optimism. So controversial a matter should properly be left to the biologists. My point in mentioning it in the present context is simply to emphasize that it is a real alternative. Once implemented it will mean that man is controlling his own evolution sufficiently to produce beings who, no matter how complex may be the human ecology which they have created for themselves, will be able to understand and control it. In such an eventuality the **democratic sense of community** would become feasible for all time or, to put the matter more temperately, for a very long time to come.

There is always the possibility, of course, that the ISC may reach a value such that a critical ratio for instability sets in well before social and moral attitudes become sympathetic towards the idea of man controlling his own evolution. Should this occur any discussion of what I have here called the long-term solution, is meaningless. There is also the

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possibility that the ISC can reach a magnitude which is well beyond the data-processing capacity of the best existing human intelligence. Such an eventuality does not, however seem likely in the face of modern developments. Computer and data-processing equipment which act as sub-assembly aids to man's own capacity to deal with complex relationships, make it rather unlikely that the highly intelligent will ever be faced with the prospect of a frustrating limit to the degree of comprehensible social complexity which they must face.

The preceding considerations represent the more focal points which we have chosen to emphasise connection with some of the possible long-term solutions to the problems of the present and the foreseeable future. These problems arise as a result of the gap between the average level of intelligence in the body politic and the degree of social complexity towards which most of the basic issues of our time are moving. As we have already remarked, the long-term solution is of little concern to contemporary thinkers, statesmen, educators and institutional innovators, all of whom recognize the crisis which is created by the gap just mentioned. Well-intentioned publics of this sort recognize the urgency of the democratic crisis, to the extent that this crisis is deepened by the relative disfranchisement of the average citizen from the information and the skills which he needs in order to wrestle properly with contemporary affairs and exercise a fruitful influence over them. Such publics will therefore insist on more practical, short-term solutions whose effects can be visible in one or two generations.

The short-term solutions needed should be of such a nature that the average serious citizen who wishes to understand our modern difficulties and who is willing to wrestle with them, will be able to make use of certain skills, information, and techniques of analysis all of which will be well within the comprehension and educability of individuals of average intellectual capacity or better. Such skills, information and techniques will presumably enable the average citizen to deal with increasing social complexity. Essentially such techniques enable citizens of average and better than average ability, to use their natural aptitudes optimally. In fact, the methods we have in mind have value precisely because they will enable most of us to operate much more efficiently than we do now, regardless of the measureable and assignable levels of intellectual capacity under which we must function. It is therefore extremely important to discuss such a set of proposed short-term solutions to the problem of grappling successfully with social complexity in a modern democracy.

The Short-Term Solutions

The variety of short-term solutions which are available are less dramatic but some of these too would be likely to meet with resistance and misunderstanding. The first of these of interest would be the formation of an **IQ oligocracy** which, of course, is not to be confused with an oligocracy of intellectuals. This would be equivalent to allowing only

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high IQ's, properly trained and educated for their tasks, to get into positions of policy-making, governmental power and administrative execution of such policies. What we envisage is a screening procedure by which large numbers of individuals of high IQ, broad and deep range of information and special aptitudes, would be selected for these positions after years of appropriate training. The screening devices would be of course, in addition to years of training, a psychological battery of relevant tests. In effect this would be equivalent to **euthenic selection** of individuals fitted by ability and training to deal with the increasing social complexities of our time. The empty forms of democracy would be adhered to only in the sense that the citizen casts his vote for competitors who seek political responsibility and power, all of whom have been drawn by the screening process just described. If we assume character disinterestedness and social benevolence in such candidates, we have a pool of talent which would probably be epuipped to deal with community affairs, regardless of the magnitude of the ISC. This solution simply ignores the unprepared voter and holds him unfit to participate meaningfully in the democratic process. In effect, the results of such a novel solution have been lampooned by Michael Young ([18]) in a mock-sociological description of a future Britain operating under just such a policy. Young, however, does not assume a fund of social altruism among the elect but instead sets the expression of superior intellectual ability in the same "dog eat dog" atmosphere of status-seeking, prestige and power, which are *leit motifs* in the world of today, Members of his "meritocracy" which, in Young's parlance, refers to the high IQ's selected for administration and policy-making, are primed by the some motivations that exist throughout most of the world today, particularly in the West. They are interested in status-seeking, job prestige and influence and they hope to take care of number one via the existing rat-race by the same methods of jockeying for power with which we are chiefly familiar. As a result Young, looking back on British history over the period 1870-2033, describes in a mock serious vein, a United Kingdom that got rid of class differences based on hereditary nobility, mercantile influence or sheer political advantage, only to wind up with a society in crisis a society deeply conscious of **caste**, albeit caste based upon IQ.

Clearly enough, unless a selection and screening procedure put equal weight upon character, disinterestedness and social benevolence, a mere high IQ would be a necessary but certainly an insufficient condition. As someone has put it in another context "Any dope can have a high IQ." An appropriate selection procedure would also have to make use of devices, based upon a combination of tests, interviews, case histories of candidates and situational probing of their dispositions, resourcefulness, fellow-feeling and other important characteristics, which would ensure a different type of motivational pattern. The meritocratic pattern described by Young leads to a psychological separatism which, as a cure for democra-

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tic mobocracy, is worse than the disease. A motivational pattern which aimed to help the individual achieve what Maslow (8) calls "self-actualization", which sought of find new forms of a sense of community and which brought most human beings closer to the pursuit of non-material and cultural goals rather than bogging them down chiefly with economic and prestige-seeking concerns, would be more to the point. If individuals who were brought to the top in such a society not only possessed very high intellectual capacity but also the motivational pattern we have just described, this joint play of factors would come much closer to giving us a ruling elite who would be well adapted from every point of view, to dealing with the increasing social complexity of our time.

A second short-term technique, sound in principle but which would be almost certain to arouse grass-roots resistance and would be almost certain to be regarded as psychologically and financially unworkable, rests on a recognition of the existence of individual differences. This hallowed principle has found acceptance in education, in industry, in personnel selection in all fields and in the idealism of political and social credos. However, it has never become a working principle in social and political life. Here a frontiersman psychology prevails in which one man is as good as another and by extension any man's social and political opinions as good as those of any other man. If we translate the fact of individual differences into political terms, however, one of its consequences would be the recognition that man's votes are of unequal merit precisely because they have unequal understanding of the issues on which they cast their votes. How then could we establish this inequality of understanding and, once established, how could we reflect it politically through our recognition of the fact of individual differences.

Inequality of political understanding could, clearly enough, be established on the basis of an Issues Test. A test of this sort would seek to determine several things. Among these, however, would surely be the determination of how much of the range of information relevant to contemporary issues, was part and parcel of the prospective voter's intellectual baggage. It would, of course, also test the analytic powers of the voter to comprehend the many facets of each individual issue and would probe the extent of the voter's familiarity with an understanding of the nature of various alternatives proposed for dealing with the problems to be faced by the body politic. I do not want to deal here with how such a test would be constructed and with how one would settle upon a passing score. In principle these do not at all present any real problems by virtue of the existence of a professional body of lore respecting test construction theory. Rather I wish to emphasise the principle that a democracy growing increasingly complex would be justified in preventing the casting of meaningless votes, defined as those which otherwise might have been cast if failure to pass an Issues Test had not blocked them. Some forms of democracy, as these are constituted at present, recognize

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the right of a democratic polity to with-hold the privilege of voting from certain citizens who cannot pass a literacy test. An Issues Test, however, would be an even more mature extension of the principle of "civic fitness" and is, at the same time, a more realistic criterion for separating the politically competent from the incompetent. The use of such a test is **not aimed at permanent, political disfranchisement.** The use of such a test allows the citizen to participate democratically in community issues at one time, if he passes it, and bars him at another time, if he fails to do so. It aims, in a sense, to screen out the **political minutemen** from the total, available body of voters, in any political campaign of major social significance. Such flexibility is clearly an asset. The greatest virtue of an Issues Test is that those who pass it constitute, as it were, the politically anointed. Regardless of the outcome of elections or of votes on referenda and similar matters, we are assured that those who voted knew what the voting was all about at the time. Division of opinion and mistakes in judgment can still occur among members of such a voting bloc. There is no procedure for eliminating human fallibility. Such division of opinion however, and such mistakes in judgment are likely to be minimized when they are the product of an educated vote. An electorate defined in terms of voters who passed an Issues Test would then assure a meaningful form of participation in the democratic process. The smallness of numbers in such a bloc is more than compensated for by the efficiency and intelligence of the resulting vote.

Adapting To Social Complexity Through Educational Reforms

A third type of approach concerns itself with the citizen before he becomes a voter. It looks forward to more intelligent voting by looking forward to a revamping of the process of education, itself. It assumes that perhaps average as well as superior citizens can learn to deal with the social complexities of our age, if they have been exposed to a type of education which prepares the individual to feel at home in the presence of complexity. Among educational theories and practises there are, of course, many candidates which claim fitness for such a task. Let us briefly examine some of these.

The standard, educational vice of our time is one which emphasizes routine drill, memorization and the fragmentation of the content of learning. An opporach which is most polar to this would be a Gestalt emphasis on learning. A Gestalt approach to productive and creative thinking would be most in order. We shall have to insist that methods which encourage the learner to see the **total structure** of a situation or problem, will probably give the greatest return on time invested. This has recently been given renewed emphasis by Bruner(1). We shall have to devise methods which encourage functional thinking in the young, encourage them to see relationships among elements of their experience instead of keeping these compartmented, and prompt the learner to develop the habit of relating anything new which he is learning to itmes and areas which are

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already matters of interest to him, In a sense we already see the fruits of this last mentioned stance in the field of operations research where the novel and original idea is frequently interdisciplinary in nature and often reflects the adequacy of a conceptual scheme, originally strictly developed for a traditional discipline, for problems in another discipline. This often happens when a deliberate effort is made to try out the intellectual fit, so to speak, an effort which has often been preceded for a long time by no suspicion that such connections could be established at all.

There are even techniques which can develop the habit of looking for relationships between items which ordinarily are not conceived of as relata. These tend to help in the discovery of the structure of events in precisely the fashion which is needed to grasp and deal with complex social variables which are connected by mathematical functions as yet unknown. They are worthwhile techniques not only for the heuristic value of the cognitive structures which we impose on the complex social realities which we are trying to grasp, but also for the attitude which they instill of being willing to face up to complexity and the perfecting of intellectual skills for dealing with these. I remember one of these well which was used by the most brilliant and versatile man I ever knew. His technique was to open up Roget's Theoaurus, close his eyes, and make a random stab with a pencil at any word on the printed page. He would then repeat this operation for another page chosen by a random flicking of the leaves. Since it is axiomatic that some relationship can be found betetween **almost any pair of words** chosen at random and very often between their referents, where these are nouns, the party of whom I speak would then force himself to find **at least one such relationship,** either between the two randomly chosen words or their respective, empirical referents. I remember vividly a demonstration he gave in which the words randomly chosen were "penny" and "gyroscope". He asked for a period of grace to discover a relationship between these two items. Then two days later a startled audience witnessed the result.He had learned to flick a penny in such a way that he could make it come heads or tails at will. This neat trick was accomplished by learning to impart **precessional motion** to the tossed penny, which is, of course, the motion of the gyroscope. I lived to see many doubting and betting Thomases relieved of their extra cash, who couldn't believe their eyes and who kept looking for a counterfeit penny with two heads or two tails. This same party, of course gave several other evidences of the value of deliberately looking for relationships between terms or their referents. The point, however, is not to arouse the reader's wonder or skepticism but to reemphasize that an intellectual habit or game of this sort, established early, is one of several devices which may accustom even the average child to face up to complexity and get a "kick" as well as a sense of mastery in dealing with it.

A "relating" habit of this type may be useful in other ways. It enc-

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ourages a **holistic** emphasis in learning which later on is more than likely to lead to interdisciplinary interests and there is nothing better than interdisciplinary interests for facing up to social complexities and thinking functionally about them. Since most of the complex systems which are represented by the structure of important social issues and problems, involve **interdisciplinary variables** (a matter which is quickly recognized in the field of **operations research**), any drive for intellectual competency and mastery which encourages one to think functionally about such variables, is all to the good. If to the self-stimulated tendency to see the relationship between **apparently** remote and independent variables, is added the statistical skills years later of multivariate analysis we have laid down, I believe,the basic psychological sets for making the comprehension of social complexity somewhat easier. If teaching machines are devised in the future, which aim precisely at enabling the learner to discover functional relations between **apparently** unconnected concepts, the Gestalt, pedagogical task of imparting a sense of the congnitive structure of fields and problems, will be reinforced and emphasized. In principle there is no particular reason why teaching machines cannot be developed which aim to cultivate a **holistic** habit of thought in their users. This would be in contrast to the fragmented learning and memorization, the conformity in method and attitude, and the emphasis on the acquisition of technique which characterizes the typical, modern American classroom. Torrance ([17]) and others who are concerned with the detection and education of the creative child, have found overwhelming evidence that the atmosphere of the typical classroom is anathema to the creatively gifted. My point in mentioning this here is not a tangential one. I am trying to say that I strongly suspect that the intellectual non-conformity of the gifted consists in part of precisely these **holistic propensities** which, after mature development, result not only in the enjoyment of complexity and being comfortable in its presence but also in the happy acquisition of those attitude and skills which are needed for dealing with it.

That the effort to relate things helps at least the memory, if not the act of learning, has been attested to in another context. A highly effective memory is a very neceessary adjunct to quicker learning of the range of information required to understand the functional nature of social complexity, where we hope this latter will he made easily available to the active intellect. Bruner ([2]) has done a series of experiments which indicate quite clearly that when new material which has to be remembered is deliberately learned by trying to relate component portions of what has to be learned, the act of memorising is much superior than when a subject tries to learn the components separately without any effort to create some relation between them. In particular, **pairs of words** were presented to twelve year olds. One group was merely told to remember the pairs which they would be asked to repeat later. Others were told to remember the pairs by producing a word or idea that would tie them together in a

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way that would make sense. The results are best made clear in Bruner's own words.

"...The word pairs include such juxtapositions as 'chair-forest,' 'side-walk-square,' and the like. One can distinguish three styles of mediators, and children can be scaled in terms of their relative preference for each : generic mediation, in which a pair is tied together by a superordinate idea : 'chair and forest are both made of wood;' thematic mediation, in which the two terms are imbedded in a theme or a little story : 'the lost child sat on a chair in the middle of the forest;' and part-whole mediation, in which 'chairs are made from trees in the forest' is typical. Now the chief result, as you would predict, is that childern who provide their own mediators do best—indeed, one time through a set of thirty pairs, they recover up to 95 precent of the second words when presented with the first ones of the pairs, whereas the uninstructed children reach a maximum of less than 50 percent recovered. Also, children do best in recovering materials tied together by the form of mediator they most often use.

One can cite a myriad of findings to indicate that any organization of information that reduces the aggregate complexity of material by imbedding it into a cognitive process a person has constructed for himself will make that material more accessible for retrieval. We may say that the process of memory, looked at from the retrieval side, is also a process of problem solving : how can material be 'placed' in memory so that it can be obtained on demand?"(pp.95-6)

For Bruner and others the basic problem of human memory is not the task of increasing the storage of information. Rather it is that of finding a variety of techniques for encoding it so that information retrieval is improved. When our educational methods from kindergarten to graduate school are drastically revamped so that memorizing and learning are achieved by deilberately looking for relations among factors which are the focus of attention, then several things are likely to be achieved. The range of information immediately available to the celebrating subject is increased, the cognitive structure of complex situations is more readily perceived and functional relationships between variables are more likely to be understood. When improvements of this type occur as a result of educational innovation extended over the entire length of the educational process, then we are likely to have adult citizens who are prepared to deal with the increasing social complexity of the modern world. Such expectations may even be reasonable for what we now call the normal range of intelligence. It is not that such methods of learning and memorizing raise the individual's intellectual stature. It is more reasonable to suppose that they merely allow all levels to operate more efficiently. It is therefore no idle dream to assume that a rise in intellectual efficiency for the average man will considerably increase his "civic fitness" for dealing with social complexity.

Critics of modern mass education have tended to make four major criticisms of it. It is first of all to some degree joyless and overdisciplined by adults, particularly in the lower elementary school where the teacher's chief role seems to be that of *Magistra Ludens*. Second, it fails to

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inculcate a habit of persisting at trying to master instructional materials, so that youngsters become bored with intellectual tasks rather quickly, even when these tasks from an adult viewpoint are rather fascinating. Furthermore, the more complex the task the earlier will the boredom set in and the more readily will the learner discontinue with them. Third, theachers tend to neglect what Mayer (9) as called the **persistence of error** in the teaching process as conducted in U. S. schools. The student moves from one class to the next, retaining incorrect concepts of basic and significant ideas and skills, and becoming more and more confused and falling more and more behind as he moves from one class to the next. No doubt the popular demand for social promotion makes its contribution to this unhappy situation. Finally, curricula and procedures often tend to be planned unrealistically, with little relation to what can be expected from the growing youngster at his particular stage of intellectual development, conditioned as it is by maturational considerations. These four types of appraisal represent some of the more widespread criticisms which the intelligent layman reads about. There are, of course, many others. There is no doubt that an individual subjected to an educational regime of this sort cannot be expected, as an adult citizen, either to be continuously interested in the issues which face the community perennially or to exhibit that intellectual persistence and effort which the complexity of these issues demand, if one is ever to understand them properly and participate in their solution responsibly. The average adult has had the necessary habits, interest and concern thoroughly weeded out of him by a dysgenic education with faults such as those we have just mentioned.

This need not, however, continue to be the case. Interest, perseverance and independence of mind have been shown to be well encouraged by certain types of educational techniques, some new, some old. Among these are the Montessori Methods and a renascence of these has been interestingly described by Rambusch (13) Indirect support for some of the Montessori claims at least with respect to preschool learning, has come in recent years from the experimental researches of Moore (10) who is in no sense a devote of Madame Montessori. [1] Recognition of the differences in learning which go with the different, maturational stages of intellectual development, has been thoroughly confirmed by the research of Piaget (11) an extremely brief summary of which has been available for some time. All these types of research, I believe, suggest methods for learning and intellectual development, which will increase conceptual rigor, interest and perseverance and which hopefully will promote a lifelong habit of facing up to complex problems, wrestling with them, remai-

1 Unpublished separates on his research were made available by Dr. Moore to the present writer and these warrant a substantial optimism concerning what some of the newer educational techniques may accomplish in the way of developing a high order of learning capacity in the average child.

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ning with them and enjoying the sense of mastery and accomplishment which result from a break-through. Since these advantages hold for the average as well as the gifted learner, we can expect that much of the complexity of the issues which must be faced by adult citizens will be more amenable to treatment and more likely to win their concern, if they have had the advantages of an early education which is greatly different from the present one. The education of the future, if we are determined to have it, will show many differences from the present one—differences which reflect some of the attributes we have just mentioned.

These differences will be differences both in content and in method. Content must address itself to the requirements for understanding work, place and people in an age of science and technology, industrial organization, new types of community planning, quantitative advances in the social studies as well as a wholly new set of phenomena with which they have to deal, the impact of science and technology on human relations and a set of social problems and social issues which represent themes that are wholly new under the sun. Differences in method, however, will be almost wholly related to the learning process.The newer methods of learning and teaching aim not only to shorten the periods needed for learning given amounts of material but, even more importantly, they aim to increase conceptual understanding and rigor, interest and mastery, perseverance and independence in the learning process. Perhaps the most revolutionary development in the newer methods of learning is the teaching machine, a device which, according to most of the available reports concerning the results of its use,really promises to make the average subject use his abilities to the full, with the unexpected result of a fringe benefit years later. This fringe benefit may be an increased capacity for, and willingness to deal with, social complexity, a capacity which will be needed more and more as time goes by, if we are serious about demanding a mature, meaningful and intelligent participation in the democratic process on the part of the average citizen. Let us therefore take a look at some of the accomplishments which have been claimed for the teaching machine by most of the authorities who have attempted to evaluate its potentialities objectively. I mention these only because of their relevance for democracy's expectation that the average citizen will make the effort to understand the issues of his time and the further effort to cope with them intelligently, so that his participation in community life will not be merely "the still small voice" which it is today.

Research results tend to show that the average human being is using only a tiny portion of his abilities. Many so-called "slow learners" are found to be only the victims of poor teaching. The art of programming has reached the point at which almost all students can get 95 per cent of the answers right. This provides the interest and pleasure which are alleged to be missing from the modern classroom for many of the young. Programs are so constructed as to prevent muddled, half-baked and illo-

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gical cerebration. Thus the preparation for the conceptual rigor needed for the handling of complex matters is assured. The great social and democratic hope which resides in instruction given via this new device, is emphasized for us in the surprising finding that children with low IQ's get just about as many correct answers as do the gifted children. It is only their rate of learning which is slower. The degree to which learning time is reduced is perhaps best exemplified by reports of students doing a year's work or more in half the regular time. More able students in high school mathematics, for instance, have covered in one year a program involving axiomatic algebra, solid geometry and calculus. One anecdote reports the case of a boy who completed a semester's work in solid geometry in four days and who received a score of 100 on the final examination which covered the whole course. Shortening of the time for instruction has also been achieved in other programs, such as one covering English in a school in Manhasset, Long Island and one covering high school algebra in Nutley, New Jersey. Time-savings have been reported over a whole spectrum of material, from spelling in the lower grades and arithmetic for retarded youngsters to elementary psychology at Harvard. Results of this sort seem to indicate that we can abolish what has been called **the persistence of error** in our educational system—a gain which augurs well for the expectation that we can have adult citizens who are sufficiently well informed to face the issues of their time. The hope can we can employ such revolutionary inventions like the teaching machine to bring out fully human intellectual potentialities, so that the complex problems of democracy may be met by the citizen of the future, has perhaps been well expressed in the following quotation from **Lock** (June 5, 1962).

> "Beyond its utilitarian applications, the new movement holds out a rare new faith in the untapped abilities in every human being. For several decades, the world's leading philosophers and poets have preached of man's weakness, helplessness and despair. It has been a long time since there has been any serious talk of the perfectability—or even the improvability—of man. Now, a buoyant, busy group of psychologists and educators are refusing to set any limit on what the average human being can accomplish. If they are right, they will give this nation a big boost in what H.G. Wells called 'the race between education and catastrophe.' And they will prove to the whole world that the human race has been selling itself short."

While we are on the subject of new educational techniques which, if started early, tend to encourage the average subject to make full use of his abilities while young, and therefore hopefully continue to encourage the same sense of intellectual responsibility in the adult, let us mention some additional, important findings in this direction. We remind the reader that our concern with such an educational achievement is rooted in our conviction that only in this way can we look forward to a time in which the average citizen will find it second nature to grapple with the complexities of the social and political problems and issues germane to

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the life of the community. These problems and issues will unquestionably grow more complex with the increasing impact of science and technology on our lives. If, therefore, democracy is to work, the average citizen must participate responsibly in community decision-making and if he is to do this he must have developed intellectual habits associated with the intellectual concentration and concern needed to deal with difficult matters. These are more likely to be present if inculcated early rather than if they are treated as a realizable objective of adult education. In matters of education involving the development of intellectual skills there is such a thing as an **intellectual point of no return**, that is to say, if we allow the citizen's intellectual potentialities to atrophy during the first two decades of his life, we will have no reservoir of needed intellectual skills to draw upon when, in the course of democratic community life, he faces for the first time the intellectual responsibility of civic decision-making. Therefore, before leaving this topic of educational encouragement of native capacity for hard and continued thinking, let us mention some additional educational discoveries which promise hope in the direction of the early fostering of sustained thinking habits.

In recent years pedagogical techniques have been developed which not only arouse intellectual curiosity but make it possible for the young to perform intellectual tasks which once were felt to be within the capacity of only gifted adults. The more distinguished of these pedagogical innovations have been worked out with respect to mathematics. the field most obviously presenting maximum intellectual difficulties from a traditional point of view. Ingenious methods, for instance, of teaching high school mathematics and occasionally of teaching arithmetic in such a way as to prompt young children to discover new ways of seeing arithmetical relationships and occasionally discovering new mathematical theorems, have been developed by a series of experimental projects at various universities[2]/. A revolutionary new method of teaching mathematical known as the Cuisenaire technique, making use of colored rods of unequal length and a device called a Geo-Board for creating quick changes in geometric figures whose mathematical consequences can be immediately detected visually, have resulted in the discovery that complex portions of algebra and geometry can be learned by the very young, and that algebra can be taught before arithmetic. This technique has been described in many articles but one highly representative one is a paper published by Gattegno (4). A device known as The Psi Apparatus, developed by John and Miller (7), will yield a picture of an individual's method of working intellectually, of his efficiency in the

2/ Projects for the reform of mathematics teaching are widespread. The most active experimental groups are the University of Illinois Committee on School Mathematics and the Arithemetic Project at the same institution. the University of Maryland Mathematics Project, the Ball State, Indiana State Teachers College Experimental Mathematics Program, The Boston College mathematics Institute, and the Minnesota Laboratory for the Improvement of Secondary School mathematics.

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acquisition and handling of information in solving a problem, as well as his consistency and appropriateness of approach. It thus not only offers an early opportunity to diagnose undesirable intellectual working habits but also provides the teacher with enough information to correct them. The Psi Apparatus has been found promising with grade school children from six to ten, and may therefore encourage those intellectual stances needed to deal with complex problems, social or otherwise.

Other techniques which would probably encourage a full use of the individuals intellectual potentialities, would be the introduction of general semantics into the elementary and high school curricula. This, we believe, would tend to sharpen the analytic propensities of the average youngster fairly early. The use of visual models of social processes and social equilibria could be expected to make a significant contribution to the development of sustained thinking on complex social matters. Pictographs,pie-charts and other visual materials can often be the first steps in the presentation of complex, social structure. A host of pedagogical devices too numerous to mention here, all work in the same direction. They serve to make subjects more efficient at grasping intellectual complexity, convert the solution of a complex problem into a fascinating game and finally eventuate in habits of thought which improve the intellectual efficiency considerably of the adult who has been exposed to all such educational innovations. The net result is that various IQ levels operate more intensively, that is to say, generate more power for the cerebral plant than might otherwise be expected.

The items mentioned in the preceding two paragraphs represent only a few approaches, but these are a small sample of many techniques which are currently being developed as the result of a creative ferment in education—a ferment aimed at showing how much the intellectual potentialities of the average person have been neglected. From our point of view, once we start developing these intellectual potentialities as early as possible, we increase the possibility that the average citizen years later will be able to rise to the political demands of an increasingly complex social milieu. In terms of our social and political concerns, this is a promise which can only increase democratic morale. Such educational efforts obviously should be encouraged, for they are among those techniques which can counter the possibility of intellectual disfranchisement which an increasingly complex social environment, threatens.

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MAGIC SQUARES

Their Constructions & Uses (Part II)

N. L. BHARADWAJ

General Remarks

EVEN magic squares are mostly the magic squares of arrangements and interchanges. These interchanges help us in making arrangements which play a very important part in the construction of these magic squares. In order to understand the intricate processes to make them properly we have to deal with certain very important things connected with them. Arrangements of numbers in a series, or a chain of series, their relation to each other, in a series or a chain of series, interchanges of numbers of series or a chain of series, filled in a square, various kinds of interchanges, different methods of making interchanges are things which cannot be neglected before the actual construction of these magic squares.

Complementary Numbers and Complementary Totals

Let us explain complementary members and complementary totals with the help of concrerte examples.

(i) 7+2=9 (ii) 3+6=9 (iii) 4+5=9

In the above examples 7+2, 3+6, 4+5, are complementary pairs of numbers and each number of the pair completes the other to get the total 9. The number 9 in such cases is called the complementary total. 9 may have other pairs of complemantary members i.e. 1+8, 6+3, 0+9. etc.So all these pairs are pairs of complementaries numbers and therir total 9 is the complementary total. It we subtract a complementary number from a complementary total we have the other complementary number, and if we add complementary numbers of any pair we get complementary total. So we come to the following conclusions—

1. If the totals of two numbers in every pair are equal the numbers are complementary.

2. If the numbers are complementary, they have equal totals.

(b) Now let us have a parental series and examine it—

1. 2. 3. 4. 5. 6. 7. 8.

Here we see that if we take—

1st number from the left and first no. from the right we get 1,8
2nd number from the left and 2nd no. from right we get 2,7
3rd „ „ „ „ „ 3rd „ „ „ „ „ 3,6
4th „ „ „ „ „ 4th „ „ „ „ „ 4,5

Here we get the same complementary nos. as in (a)m.

(c) The above series in (b) Can be broken into any number of groups, each group containing as many terms as there or houses in the row of a square.

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Thus in a square of four, we get four groups each containing four terms—No. of terms is always definite in a square. Here we get complementary nos. by cross wise method.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

	2nd & 3rd line		3rd & 4th line	
1st & 2nd Lines	1 4	2 3	5 8	6 7	9 12
	X	X	X	×	×
	5 8	6 7	9 12	10 11	13 16
	C. Total=9	C. Total=17		C. Total=25	

10 11
×
14 15
C. Total=25

In the same way 1st 3rd, or 1st and 4th and so on and so forth.

(a) Here we give another and quite a different method of finding complementary nos. It is the case of a chain of a series:—

1 2 3 4

8 7 6 5

9 10 11 12

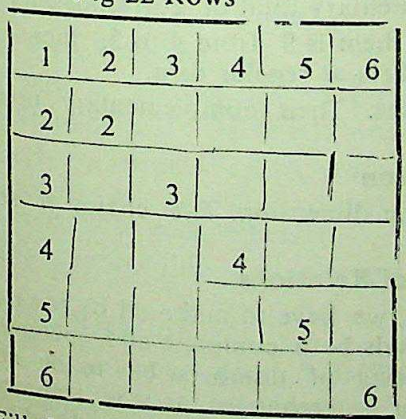
Here we have got the same compl. nos. in a very easy manner.
The C. T. O. 1st & 2nd rung 9
" " " 2nd & 3rd rung 17
" " " 3rd & 4th rung 25

Uses of a, b, c, & d Methods noted above

Now we will say something about the arrangements of the different series a. b. c. & d. noted above.....(a) is too simple to (b) Series as given in (d) above is very useful in finding compl. columns and compt. rows.

(1) Fill the parental series 1—6 in the houses of the first row. The numbers give you the position of each column and compl, nos. give you compl. columns. 1. 6, 2 5 and 3.4 are compl. column s.

Fig 22 Rows



(2) Fill the same parental series 1—6 in the houses of the first columm. The numbers give you the position of each row and compl. nos. gives

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you compl. rows 1—6, 2—5 and 3—4 are compl. rows.

Note 1 : From the above we see that compl. columns and compl. rows are equidistant from the first and last opposite sides, of columns and row respectively.

Note 2 : We see that to find the position of columns we fill the first row and to find the position of rows we fill the first columm with the parental series.

(3) If we fill a diagonal with the same series we can in one stroke find the position of rows and columms and their compl. relation.

Example—2 and 5 are compl. nos. They fall in the 2nd and 5th rows and also in the 2nd and the 5th columns. Therefore 2nd and 5th rows are complementary and 2nd and 5th columns are complementary.

General Rule :

Hence the general rule in short for all, is that rows and columms in which complementary numbers, fall are compl. columns & rows.

(c) The importance of this kind of arrangement of a series lies in this that we can get a magic square of two latent dimensions very easily.

(d) Of all the methods of finding compl. nos. discussed above the method shown in (d) is by far the most important one. Therefore we will discuss it a bit in detail. We have arranged the numbers in the manner noted on the right hand side. This kind of arrangement is called a chain of series. From 4 we have sharp turn called regular turn to the opposite direction. Similarly from 8 and 12 we have regular turns, nos.4, 5, 8, 9, and 12, 13 are called nos. at regular turns.

1	2	3	4
8	7	6	5
9	10	11	12
16	15	14	13

Nos. at Regular Turns Rungs

Parts of the chain of series namely1—4—8—5—9—12 and16—13 are called rungs. Each rung makes a complementary series with the next rung and vice versa. The coresponding numbers in any two complementary Rungs are complementry numbers and the total of complementary numbers is their complementary total. It is better to find complete totals by adding nos. at the regular turn. Examples—

In the above series—

First rung 1 2 3 4 are complementary and the
second rung 8 7 6 5 complementary total of corresponding
9, 9, 9, 9 nos. in them is 9 from 4 to 5, there is a regular turn. Numbers 4 & 5 are numbers at regular turn.

Proceed similarly with other rungs. Their complementary total is 17, 25.

A Magic Square of one dimension

This series gives us a M. Sq. of one dimension. The chains of series can be written from any side.

Relation of Houses and Kinds of Relations

In order to make a square magic, we have to make all its rows and columms and, if possible, all its diagonals both complete and incomplete magic. For that purpose mental shifting of numbers has to be accomplished. Now this mental shifting or interchanges as it is technically called, always takes place between related houses. All these related houses lie in complementary rows and complementary columns. If these hou-

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ses lie in the same row, they are horizontally related to each other.

Horizontally and Vertically Related Houses.

Obliquely Related Houses and Crossly Related Houses

If the two houses lie in the gonally opposite directions in complemen tary rows and complementary columns, they are obliquely one skewly related to each other. In other words, two houses are said to be obliquely related to each other when one is horizontally related to a third house and the other is vertically related to the same third house. It may be called verto. Horizontal relation. If two such pairs are thus obliquely related they are said to be crossly related houses. All crossly related houses lie where the complementary columns meet with complementary rows.

Fig. 23

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Examples—Fig 23
Vertically Related
First row and sixth row
Second ,, ,, 5th ,,
Third ,, ,, 4th ,,

are complementary to each other and the opposite houses in them are vertically related to each other. 2—32, 5—35 and so on are vertically related to each other.

Horizontally Related

Similarly.....
First col. and sixth col.
Second ,, ,, 5th ,,
Third ,, ,, 4th ,,

are complementary to each other and the opposite houses in them are horizontally related to each other, 7—12, 19—24 and so on are horizontally related to each other.

Skewly Related

Houses 1 2 3 of row no. 1 are skewly related to
Houses 36 35 34 of row no. 6 respectively.

Similarly Houses 7, 8, 9, of row no. 2 and Houses 30, 29, 28, of row no. Similarly we may find related houses in other cases of rows. 5 are skewly related to each other.

The skew relation of houses in columms may be shown in the same way.

Cross Relation :

In Fig. 23 House no. 1 & 36 Show skew relation. } They are together called crossly related houses
2—35 in are ,, ,, 6—31 ,, ,, ,,
5—32 are cases of crossly related houses of

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INTERCHANGES

(a) Individual Interchanges

Mutual change of places of numbers filled in related houses are called interchanges.

Interchanges are of four kinds—

(1) Verticle Interchanges—Here interchanges take place between the numbers filled in vertically Related houses.

(2) Horizontal Interchanges—Here interchanges take place between the numbers filled in Horizontally Related houses.

(3) Oblique Interchanges—Here interchanges take place between the the numbers filled in obliquely Related houses.

(4) Cross Interchanges—Here interchanges take place between the numbers filled in crossly Related houses.

(b) Collective Interchanges.

All the above interchanges are interchanges of single or individual numbers. We will now give a short description of their collective interchanges and different methods of performing them. All these collective interchanges are based on the circular movements round an imaginary centre or lateral turning movements round imaginary hinges,

Circular Movements

These circular movements are either flat i.e. parallel to the floor, upright i.e. perpendicular to the floor or oblique making an angle of less than 90° with the floor. All the above different kinds of circular movements can be so used as to give us collective interchanges of numbers written on a piece of paper, or a card board or a wooden board.

Lateral Turnings.

Here a board or a portion of board makes an upside down or a downside up movement, or rightside left, or left side right movement. These movements will also give us collective interchanges of numbers written as above.

We will make use of flat circular movements and lateral turnings for our purpose and leave others. They are easy and more convenient.

Examples of flat circular movements—Stone piece of a pot maker gramophone records, stone pieces of flour machines. They run parallel to the ground.

Examples of Lateral Turning—Card board covers, leaves of books, Lids of boxes, panels of windows and doors.

In this connection we may note that two lateral turnings from two dissimilar sides are equal to a circular movement for the purpose of interchange. Each turning makes Semi circle 180° in a space. A Circular movement, on the other hand makes only one semi circle i.e. 180°. One Circular movement serves the purpose of the two lateral Turnings. In the construction of Even Magic Squares, both of these movements are of utmost importance.

The following illustrations will make the whole thing very clear.

(a) It is a square of 4 in which a chain series arranged.

(b) Here the left half of (a) is interchanged by one half circular movement or two dissimilar Lateral turnings, as noted above—first turning is upside down & the second left side right.

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(c) Here the lower half is interchanged by one upside down turning so the face goes down and the blank back side comes up. The interchanged position is written properly.

(d) Here the face down numbers in (c) are shown in their corresponding houses in the face up position in (d).

Fig. 24

(a)

1	8	9	16
2	7	10	17
3	6	11	16
4	5	12	13

(b)

1	8	13	12
2	7	14	11
3	6	15	10
4	5	16	6

(c)

1	8	13	12
2	7	14	11

(d)

1	8	13	12
2	7	14	11
3	5	16	9
4	6	15	10

The arrangement of nos. is now complete.

A little practice will enable us to make these interchanges at sight and to dispense with this practical work.

Now we can use either the individual or the Collective method of making interchanges.

Aids—As in odd magic squares,we make use of certain aids in even magic squares also.

These aids are—

1. Directing squares.
2. Measures.
3. Helping Squares.
4. Circular Movements.
5. Straight movements.
6. Interchanges.
7. Arrangements.
8. Selection.
9. Trial.
10. A combination of any two or more of the above, aids.

Method—Helping Squares,

General Rules of filling numbers in the two helping squares for the construction of all even magic squares.

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Filling the first Helping Square

1, Fill the left Diagonal with numbers in natural order Fig. 25 or complementary position order Fig. 26.

2. Fill the same numbers in vertically related houses.

3. Remaining Houses in complementary columns are to be filled with the same complementary numbers as are already filled in two of the complementary columns i.e. with complementary numbers any way provided—

I. There is equal number of each of them in the column.

and II. in Singularly Even squares in every row at least one house which is not in a diagonal shall have its vertically related house filled with the same number as itself.

Filling the Second Helping Square

1. Fill the left diagonal with numbers in natural Fig.25 or complementary Order Fig. 26 with as much common difference as there are houses in the row of the suqare.

2 Fill the same numbers in Horizontally related Houses.

3. Remaining houses in complementary rows are to be filled with the same complementary numbers as are already filled in two of the complementary rows i.e. with complementary numbers any way provided—

I. There is equal number of each of them in the row.

and II. that if any house in a row of the first square and its vertically related house are filled with complementary numbers then the corresponding house in the row of second square and its horizontal related house must occupy the same number.

Doubly Even Rigid Magic Squares Natural order Filling

Fig, 25 (a)

1	3	2	4
4	2	3	1
4	2	3	1
1	3	2	4

+

(b)

0	12	12	0
8	4	8	8
4	8	8	4
12	0	0	12

=

(c)

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

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Singly Even Rigid Magic Squares Nautural Order Filling

Fig. 26

(a)

1	5	4	3	2	6
6	2	4	3	5	1
6	5	3	4	2	1
1	5	3	4	2	6
6	2	3	4	5	1
1	2	4	3	5	6

+

(b)

0	30	30	0	30	0
24	6	24	24	6	6
18	18	12	12	12	18
12	12	18	1	18	12
6	24	6	6	24	24
30	0	0	30	0	30

(c)

1	35	34	3	32	6
30	8	28	27	11	7
24	23	15	16	14	19
13	17	21	22	20	18
12	26	9	10	29	25
31	2	4	33	5	36

We could fill the diagonals in complementary order instead—
Ist H. Sq. 1, 5, 3, 4, 2, 6 2nd Helping Sq. 0,24,12,18,6,34 proceed further in the same way as in fig. 26.

Constuct all higher Doubly Even M. Sq. as in Fig. 25.

" " " Singly " " " " " 26.

Construction of Magic Square of Ten (a) **Helping Square**

1	9	3	7	5	6	4	8	2	10
10	2	8	4	6	5	7	3	9	1
10	2	3	7	5	6	4	8	9	1
10	9	8	4	6	5	7	3	2	1
1	2	3	4	5	6	7	8	9	10
1	9	8	4	5	6	7	3	2	10
10	9	8	4	6	5	7	3	2	10
1	9	3	7	6	5	4	8	2	10
10	2	8	7	5	6	4	3	9	1
1	2	3	7	6	5	4	8	9	10

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Helping Square (b)

0	90	0	90	90	90	0	0	90	0
80	10	80	10	80	80	10	80	10	1.
20	70	20	20	70	70	70	20	70	20
30	60	60	30	60	60	30	30	30	60
40	50	50	50	40	40	40	50	50	40
50	40	40	40	50	50	50	40	40	50
60	30	30	60	30	30	60	60	60	30
70	20	70	70	20	20	20	70	20	70
10	80	10	80	10	10	80	10	80	80
90	0	90	0	0	0	90	90	0	90

Magic Square (c)

1	99	3	97	95	96	4	8	92	10
90	12	88	14	86	85	17	83	19	11
30	72	23	27	75	76	74	28	79	21
40	69	68	34	66	65	37	33	32	61
41	52	53	54	45	46	47	58	59	50
51	49	48	44	55	56	57	43	42	60
70	39	38	64	36	35	65	63	62	31
71	29	73	77	26	25	24	78	22	80
20	82	18	87	15	16	84	13	89	81
91	2	93	7	6	5	94	98	9	100

Master Magic Squares Doubly Even.

Method—Helping Squares—
Rules of Arrangements—

First Helping Square

1. Fill the alternate houses in the first column with pairs of complementary numbers 1, 2, 4, 3 or

Second Helping Square

1. Fill the alternate houses in the first row with pairs of complementary numbers 0, 4, 12, 8or

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2, 4, 3, 1 or 4, 3, 1, 2 in any way you like.

2. Fill the corresponding houses of the second column with their complementary numbers.

3. Repeat the numbers in the first and second columns in all the oddth and Eventh columns respectively in the same order.

Fig. 27 (a)

1	4	1	4
2	3	2	3
4	1	4	1
3	2	3	2

4, 12, 8, 0 etc in any way you like.

2. Fill the corresponding houses of the second row with their complementary numbers.

3. Repeat the numbers in the first and Second rows in all the oddth and eventh row respectively in the same order.

(b)

0	4	12	8
12	8	0	4
0	4	12	8
12	8	0	4

(c)

1	8	13	12
14	4	2	7
4	5	16	9
15	10	3	6

There are no M.M. Squares "of Singly Even M. Squares we may here make a distinction between complementary numbers filled in the alternate houses of a column or row on the one hand and "Complementary groups filled in a column or a row" on the other. Let us take the case of a M. Sq. of 8.

(1) Complementary Groups in a row | 1 | 2 | 3 | 4 | 8 | 7 | 6 | 5 | (i)

(2) Complementary numbers in alternate houses of a row | 1 | 3 | 8 | 6 | 4 | 2 | 5 | 7 | (ii)

We can start with any one of them. The first one is easier, proper and more elegant, Fig 27 is an example which illustrates both of them. Its first column is filled with 1 2 4 3 (Two groups.) and its alternate houses are filled with complementary numbers 1 & 4, 2 & 3. Their complementary total is 5 See Figs. 33, 34, 35.

Construction of Doubly Even Magic Squares.

Method Of Cross Interchanges

We have already referred to various kinds of Interchanges and different methods of performing them. In the construction of the following Doubly Even M. Sq. we will use the cross interchanges method of a

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very quarters and subquarters simple nature.

It will be convenient to divide doubly even squares into four quarters. These quarters may again be divided into four subquarters may again be divided into four sub-quarters. The number of quarters and subquarters will always be constant i.e. four. The number of houses in them will depend on the size of squares.

How To Find The Number Of Houses.

No. of houses in a subquarter $\left(\frac{\text{Size}}{4}\right)^2$

In a M. Sq. of 4 $(1\frac{1}{4})^2\ 1=1$
In a Sq, of 8 $(\frac{8}{4})^2\ 2^2=4$
In a Sq. of 12 $(\frac{12}{4})^2\ 3^2=9$

No. of houses in quarter—
=No. of houses in a subquarter $\times$ 4.

In a M. Sq. of 4 $1\times 4=4$
In a M. Sq. of 8 $4\times 4=16$
In a M. Sq. of 12 $9\times 4=36$ & so on

This division of D.E. Squares into Quarters and subquarters helps us in preparing schemes of related houses. These schemes help us in determining the positions of related houses. They easily catch our eyes and save a great deal of our valuable time and energy.

Schemes Of Related Houses

Fig. 28 Total no. of houses in Gonal and Nongonal portions is always equal.

Fig 28 (a)

g	n	n	g
n	g	g	n
n	g	g	n
g	n	n	g

(b)

g	g	n	n	n	n	g	g
g	g	n	n	n	n	g	g
n	n	g	g	g	g	n	n
n	n	g	g	g	g	n	n
n	n	g	g	g	g	n	n
n	n	g	g	g	g	n	n
g	g	n	n	n	n	g	g
g	g	n	n	n	n	g	g

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In the above schemes "g" represents houses in the gonal and 'n' represents houses in the non-gonal portions of the squares. Cross Interchanges of numbers will take place between Crossly related houses of either gonal subquarters or non-gonal subquarters resulting in two kinds of Magic Squares.

M. Sq. of 4—(a) Latent M. Sq. (b) Gonal Cross Interchanges (c) Non Gonal Cross Interchanges

Fig. 29

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

16	2	3	13
5	11	10	8
9	7	6	12
4	14	15	1

1	15	16	4
12	6	7	9
8	10	11	5
13	3	2	16

2. M. Sq. of 8— Fig 30 (a) Latent M Sq.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

(b) Gonal Cross Interchanges

46	63	3	4	5	6	58	57
56	55	11	12	13	14	50	49
17	18	46	45	44	43	23	24
25	26	38	37	36	35	31	32
33	34	30	29	28	27	39	40
41	42	22	21	20	19	47	48
16	15	51	52	53	54	10	9
8	7	59	61	61	62	2	1

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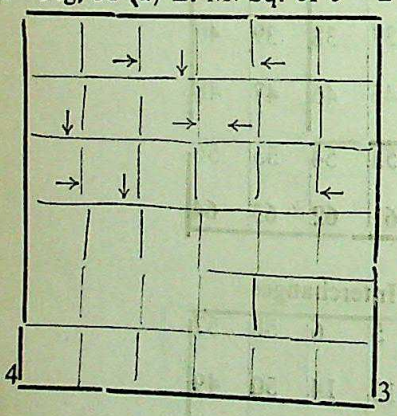
Non Gonal Cross Interchanges (c)

1	2	62	61	60	59	7	8
9	10	54	53	52	51	15	16
48	47	19	20	21	22	42	41
40	39	27	28	29	30	34	33
32	31	35	36	37	38	26	25
24	23	43	44	45	46	18	17
49	50	14	13	12	11	55	56
57	58	6	5	4	3	63	64

Singly Even Magic Squares

Method of Cross Interchanges is also applicable in the case of Singly Even Magic Squares in a limited sense. Here Interchanges are not of universal applicability. They are applicable in individual cases only. We therefore call them methods of selection. They are mere helps to memory, With their help we can reproduce these magic squares at will without under going the tedious, processes involved in making them by other processes. There may be many methods of selection for the same magic square. They are, of course, reducible to a general form. I give below an example to illustrate what I mean.

1 Fig, 31 (a) L. M. Sq. of 6 2



Parental Series (b)

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

M. Sq. of 6 (c)

36	5	33	4	2	31
25	29	10	9	26	12
18	20	22	21	17	13
19	14	16	15	23	24
7	11	27	28	8	30
6	32	3	34	35	1

Method of Selection applied

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Explanation—(a)

1. The square is divided into four quarters
1. Upper left quarter.
2. ,, right ,,
3. Lower ,, quarter
4. ,, left ,,

A set of 3 arrows in broken diagonals of lower left quarter faces upwards. These make a vertical interchange. The result of all these interchanges is the M. Sq. of 6 Fig. 31 (c).
Note : Vacant houses in the scheme do not interchange their numbers.

2. Numbers in rel. houses of left diagonals cross interchange.
3. Numbers in related houses of right diagonal cross interchange.
4. A set of 3 arrows in broken diagonal of upper left quarter faces to the right and also.
   A set of 3 arrows in broken diagonals of upper right quarter faces to the left.
   These make a Horizontal interchange.
5. Another set of 3 arrows in broken diagonals of upper left quarter faces downards and also.

Doubly Even M. M. Squares

With the help of.....
(a) Measures, and
(b) Straight movements.

We have already learnt how to make arrangements of numbers in a square with the help of various kinds of suitable interchanges of nos. filled in related houses. We may, therefore, now proceed to construct doubly even master magic squares with the help of measures or straight movements. Fig. 24 (d) By using the numbers in the order of arrangements instead of parental order we can construct the same M. M. Square in two different ways—

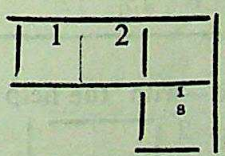
(a) By measurement or
(b) By straight movement.

Let us first discuss about the size of measures and straight movements. The size of measures and straight movements depend on the size of magic squares.

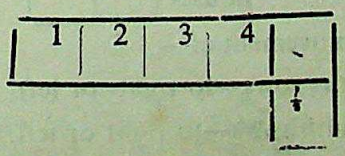
(a) The size of measures.....

(The size of measure $= \frac{\text{Size of M. Sq.}}{2} + \frac{1}{2}$

1. For a M. Sq. of $4 = \frac{4}{2} + \frac{1}{2} = 2\frac{1}{2}$



" " " $8\frac{8}{2} + \frac{1}{2} = 4\frac{1}{2}$



So on & so forth.

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(b) The size of St. movements...

The size of Straight movement $= \frac{\text{Size of M. Sq.}}{2} + \frac{1}{2}$

1. For M. Sq. of $4 = \frac{4}{2} = 2$ houses.
2. „ „ „ $8 = \frac{8}{2} = 4$ houses.

and so on & so forth.

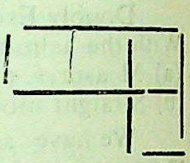
Let us now start from Fig 24 (d). It will be convenient for us to reproduce it here.

Now we have the above two different methods of making M. M. Squares from this arrangement (Fig. 32).

Fig. 32

1	8	12	12
2	7	14	11
4	5	16	9
3	6	15	10

(a) First Method—with the help of measures size of measure— $2\frac{1}{2}$



Here in Fig. 32, 18, 13, 12, are start nos.

1. 2. 4. 3. 8. 7. 5, 6, etc., are to make circuits, make free use of directing squares.

Fig. 33 Illustration

1	8	13	12		
14	11	2	7	14	
4	5	16	9	4	5
15	10	3	6	15	10
8	13	12		8	13

(b) Second Method—with the help of straight movements—size of straight movements $= \frac{3}{2} = 2$ houses



Straight movement of—

(a) Eventh rows—to right or left

or (b) Oddth rows—to right or left.

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we will here move eventh rows to the right Fig. 32

Fig. 34

1	8	13	12		
14	11	2	7	14	11
4	5	16	9		
15	10	3	6	15	10

By Calculation

We can construct bigger M. M. Squares in the same way.

Doubly Even M. Squares By Calculation.

Let us look at the following chains of series—

For a M. Sq. of 4 8 12

(1) 1 2 (2) 1 2 3 4 (3) 1 2 3 4 5 6

4 3 8 7 6 5 12 11 10 9 8 7

Every one of the above the chains of series can be divided into two groups which can be filled in columns both the groups keeping the same direction. We take for example, the second series and deal with it with the help of diagrams.

(a) (b) (c) Fig. 35 (d) Left Half Right Half

1	16	17	32	57	56	41	40
58	55	42	39	2	15	18	31
3	14	19	30	59	54	43	38
60	53	44	37	4	13	20	29
8	9	24	25	64	49	48	33
63	50	47	34	7	10	23	26
6	11	22	27	62	51	46	35
61	52	45	36	5	12	21	28

M. M. Sq. of 8

Fig. 35 (a) First Rung. It is the first rung of the chain series filled in a column as two complementary groups keeping the same upper direction. It will form the first Circuit of the M. Square (d).

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(b) Here the oddth houses of (a) are shown filled in a separate column with numbers 1, 3, 8, 6.

(c) Here the eventh houses of (a) are shown filled in a separate column with numbers 2. 4. 7. 5.

(d) It is a square of 8 divided into two halves—The left half and the right half,

The rungs of a chain series are complementary. It follows from it that the groups are also complementary in the same order. Such groups are also used in the construction of M.M. Squares.

Filling the M.M. Squares of 8.

This M. Squares will be finished in three stages. First Stage, First Rung, First Circuit.

Filling the First rung in the First Circuit.

Rules—

(a) The numbers in the oddth houses of (a)as represented in (b) are to be filled in the oddth houses of the first column of the left half of the Square (d).

(b) The number is the eventh houses of (a) as represented in (c) are to be filled in the eventh houses of the first column of the right half of the Square (d). Fig. 35 (d).

Second Stage—Other Circuits—2nd Circuit—3rd Circuit & 4th Circuit—Filling upto half the houses of the Square we have already read, in the general remarks on the Doubly even M.M. Square about complementary numbers and complementary totals in connection with different kinds of series. So far as Chain series are concerned, we know that the numbers filled in the houses of a rung are. Complementary to the numbers filled in the corresponding houses of the next consecntive rung and the sum of all these pairs of corresponding numbers are equal i.e. their totals are complementary. We have also noted that it is more convenient and proper to get our complementary totals by adding numbers at regular turns.

But the question arises as to how to find these numbers at regular turns.

Smaller & Bigger Nos.

(1) The smaller number of the two can very easily be found by multiplication table of the number giving the size of the Magic Square.

(2) The bigger one can be found by adding the common difference to the smaller number.

We take the magic square 8 to illustrate the above.....

Smaller no.	Bigger No.	Compl. Total	Circuit
$8\times1=8$	$8+1=9$	$8+9=17$	2nd circuit
$8\times2=16$	$16+1=17$	$16+17=33$	3rd ,,
$8\times3=24$	$24+1=25$	$24+45=69$	4th ,

In the same way we can deal with other smaller and bigger Magic Squares.

Now it is very easy to fill the numbers of other rungs in other circuits. A number of every next or higher circuit is to be filled on the complementary basis of the previous circuit. By subtracting the numbers of the previous circuit from the complementary total of the two rungs or circuits we get the numbers of the next circuits.

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Examples—

Second Circuit—

Compl. Total	Previous Circuit	Next Circuit
17	1	16
17	2	15
17	3	14
17	4	13
17	8	9
		and so on and so forth

So the order of numbers in this circuit is—1.16,2.15,3.14 etc.

Third Circuit—

Compl. Total	Previous Circuit	Next Circuit
33	16	17
33	15	18
33	14	9 & so on

So the order of numbers here will be 1,16,17 etc. 2.15,18. 3,14,19 etc.

Fourth Circuit—

Compl. Total	Previous Circuit	Next Circuit
49	17	32
49	18	31
49	19	30 So on

So the order of numbers here will be 1,16,17,32 etc. Fig. 35 (d)

Third Stage— Completing the Magic Square—

Of the Chain series $\left\{\begin{matrix} 1 & 2 & 3 & 4 \ldots\ldots 32 \\ 64 & 63 & 62 \ldots\ldots 34 & 33 \end{matrix}\right\}$ we have already filled the nos. of the 1st rung 1.....32 Fig. 35 (d). The remaining numbers 64, 63...33 of the second rung...The compl. nos. of these already filled—are to be filled on the compl. basis in a different and far easier way. In view of the cross interchanges of the right half and the verticle interchanges of the lower half of the square Fig. 24 it would be rather tedious to follow the processes used in the previous stages. Hence the necessity of following the easier way.

For this purpose we require a number of gonal houses as medium. This number of gonal houses depends on the size of the magic square proposed to be constructed. I therefore give below a few formulae.

1. Formula for finding the no. of gonal houses.

$$\frac{\text{Size of the Square}}{2} + 1$$

2. Formula for finding the number of gonal houses between the two complementary numbers.

$$\frac{\text{Size of the Square}}{2} - 1$$

Examples—

No. of gonal houses for a square of $4 = \frac{4}{2} + 1 = 3$

Square of $8 = \frac{8}{2} + 1 = 5$

No. of gonal houses between two complementary numbers for a

Square of $4 = \frac{4}{2} - 1 = 1$

Square of $8 = \frac{8}{2} - 1 = 3$

In filling the complementary numbers of the second rung in a circuit, it is better to proceed according to the order of number in he previous

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circuit. We may procced according as they occur in the square or as it suits our convenience. We may or may not use the directing squares.

Filling numbers from 64.....33.....

Now in above chain of series numbers at regular turn are 32+33. The complementary total of the series, therefore, is 32+33=65. From 65 we take out the complementary no. 1 and get the other complementary no. 64.

Now start from complementary no. 1, leave three gonal houses and fill the complementary no. 64. Now this complementary no. 64. occupies the houses at the junction of the 5th. Column & the 5th row, we write 64 in house no. (column 5, row 5) or (c5, r5) or similarly (5,5)—(c, r).

Now we may proceed according to the order of number 2, 3, 4 etc. or according to the numbers occurring in the Magic Square i.e. 16, 17, 32 or as we like from any number below 33.

Let us start from 2 and fill its complementary no. 63 in house (1, 6).

Let us now start from 16 and fill its complementary no 49 in house no. (6, 5).

Fill all the other houses in the same way, and at the same time go on comparing the result with fig. 35 (d) and complete the magic square.

A few words on the use of Directing Squares

It will be interesting in this connection to say something more on the use of Directing Squares. Hitherto we have used them as means of directing ousted numbers 54 to their corresponding houses in the central square. Make a reference to Fig. 6 and note how no. 7 has travelled to its corresponding house in many different ways we have said that we may or may not use directing squares. Now let us see how we can use the directing squares.

So there are two methods of reaching the desired house for filling the complementary no. of 1 already filled.

1. The direct method which we used here.
2. The indirect method through the directing squares.

Now let us explain the second method with the help of an example. Let us find the house for the complementary no. of 1 which is 64 in this case.

Now the house occupied by 1 has four corners, we have already reached its complementary no. directly through the lower right hand corner.

Now we will reach the same destination through other corners. Houses in the Central Squares only are counted. The houses in the directing squares are left un-counted.

1. We start from 1 through the upper right hand corner, reach above 16, go through 55. 22. 34 and reach 64. So we have 3 houses between 1 and 64. House in the directing squares above 16 is not counted.

2. We go to the left hand side of 58 through the left hand lower corners and reach 64 through 31. 43. 13.

3. We go to the gonal directing square through the left hand upper corner and reach 64 through 28. 46. 10. Fig. 6. Ousted no. 7.

New Circuit & Counting

In this connection we may make a distinction between a new circuit & counting. In new circuits we maintain a definite relation between stop

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nos. and start nos. In counting we cross over the numbers in the way and reach the house of the complimentary no. There is no question of corresponding houses here, they be filled or empty the counting goes on unchecked.—

Some important Magic Squares

Compare Fig. 27 (c)

1. Its rows are magic. 1. 8. 13. 12=34.
2. Its columns are magic. 1. 14. 4. 15.=34.
3. Its diagonals are magic. 12. 2. 5. 15.=34.
4. Its broken Diagonals are magic. 12. 14. 5. 3.=34.
   13. 7. 4. 10=34.
5. Any four contiguous numbers are magic;—
   13. 12. 2. 7, 2. 7. 9. 16, 4. 5. 15. 10. etc.are all magic Total=34.
6. Any four alternate numbers are magic, 12. 8. 9. 5, 2. 14. 15. 3, 1. 13. 16. 4 etc. are all magic. Total=34.

All the above 1 to 6 items are applicable to every one of the sixteen magic Squares composing the composite magic squares. Fig. 35,

They are also applicable to the composite magic Square itself Fig. 35.

Fig. 35 A Strange composite Magic Square.

1	8	13	12	113	120	125	124	193	200	205	204	177	184	189	188
14	11	2	7	126	123	114	119	206	203	194	199	190	187	178	183
4	5	16	9	116	117	128	121	196	197	208	201	180	181	192	185
15	10	3	6	127	122	115	118	207	202	195	198	191	186	179	182
209	216	221	220	161	168	173	172	17	24	29	28	97	104	109	108
222	219	210	215	174	171	162	167	30	27	18	23	110	107	98	103
212	213	224	217	164	165	176	169	20	21	32	25	100	101	112	10
223	218	211	214	175	170	163	166	31	26	19	22	111	106	99	102
49	56	61	60	65	72	77	76	241	248	253	252	129	136	141	140
62	59	50	55	78	75	66	71	254	251	242	247	142	139	130	135
52	53	64	57	68	69	80	73	244	245	256	249	132	133	144	137
63	58	51	54	79	74	67	70	255	250	243	246	143	138	131	134
225	232	237	236	145	152	157	156	33	40	45	44	81	88	93	92
238	235	226	231	158	155	146	151	46	43	34	39	94	91	82	87
228	229	240	233	148	149	160	153	36	37	48	41	84	85	96	89
239	234	227	230	159	154	147	150	47	42	35	38	95	90	83	86

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In Fig. 27. (c) we took individual numbers while in Fig. 35 we take individual Magic Squares. Try and verify the results as above in this case also.

A Borderd Magic Square of great interest.

We now give a bordered M Square. Fig. 36. These bordered magic squares are made by trial. They are not regular. The only regular bordered Magic Square is a Magic Square of 3. As a matter of fact all magic squares of 3, as we have already noticed are bordered magic squares.

We can remove these borders, either from with in or from without, without sporting its magic nature. The following Fig. is a Magic Sqare of 11, we will refer to it, when we come to uses of magic squares.

1. Two patent dimensions & Diagonal are Magic .Remove the borders one by one the remaining squares will still be magic.This removal may be begum either from within or from without. Without spoiling its magic nature.

2. Every border has its complementary totals and complementary totals of all the borders are equal i.e. they are complementary. 10 +112 =122. 118+4=122 Similarly 33 plus 89=122,57+65=122.

1. Opposite corners and (2) Opposite side portions of every border have complementary numbers. Their totals are=122.

See necessary Requisitions Fig. 18.

This is a very important case of a M. Square of 7.

It is an example of Deviation. Deviation from the usual method. Mark the following.

1. Start nos. 1, 8, 15, 22,29, 34, 43,
2. Stop nos. 7. 14, 21,28, 35, 42.

Here we have used two measures. As between the terms we have

Fig. 36 A Chain Series of Borders

118	20	19	18	17	10	115	114	113	121	6
120	33	28	35	36	99	93	110	93	27	2
119	30	76	40	41	74	75	77	44	92	3
117	31	79	49	50	67	68	71	43	91	5
11	32	39	66	64	57	62	56	83	90	111
12	101	37	69	59	61	63	53	85	21	110
13	97	38	70	60	65	58	52	84	25	109
14	96	80	51	72	55	54	73	42	26	108
15	34	78	82	81	48	47	45	46	88	107
16	95	94	87	86	23	24	22	29	89	106
116	102	103	104	105	112	7	8	9	1	4

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Fig. 37

1	14	20	26	32	38	44
39	45	2	8	21	27	33
28	34	40	46	3	9	15
10	16	22	35	41	47	4
48	5	11	17	23	29	42
30	36	49	6	12	18	24
19	25	31	37	43	7	13

used the master measure $2\frac{1}{2}$ i.e. $\left|\frac{1\ 2}{\ \ \frac{1}{2}}\right|$ and as between between the groups we have used a camel measure of three gonal houses to the opposite direction from the head of the measure. So the usual relation between the stop nos. and the start nos. is changed and we have a case of deviation from the usual method.

This method is applicable to all M. M. Squares above five.

Uses of magic squares in India.

Different magic squares are used for different purposes. Magic Square of 3, the lowest magic square of odd series, is considered to be the most auspicious of all and is used throughout the length and breadth of India by people of all classes specially the merchant classes with religious bent of mind. A casual observer can see them written on the walls above the doors of their houses and shops. The names of the three goddesses, Lakshmi the Goddess of wealth and prosperity, Sarasvati the goddess of wisdom and learning and Durga the goddess of war & defence are invariably connected with this magic square. Wealth wisely earned and zealously guarded brings about Abhudaya, prosperity and Nishreyas. Sidhi heavenly bliss. Fig. 7.C. Its symbol is Jyoti—Light.

Magic Square of 4.

Magic Square of 4 specially the divisible one Fig. 24e represents Tamas-Darkness. It can be very successfully used by persons who practice black arts. It is our every day experience that dreams generally follow light. In exceptional cases we have dreams of darkness. They are extremely troublesome. We can produce such dreams with the help of this magic square. Such dreams have a maddening result. They are just like the experiences one has in a solitary dark cell.

Magic Square of 5.

Magic Sq. of 5, specially Master Magic Square of 5 is very useful. Fig. 17 (a) (b). It is an antidote to the ill effects magic square of 4. It is the most wonderful of all the magic squares. It can cure all the nervous diseases directly and all the other diseases indirectly. Such as hemicronia, madness, mania, hypochondria, toothache, Scorpian bites, false fears, hallucinations of kinds, mad dog bites etc. I would like to give below two very interesting cases of cure effected with the help of magic squares.

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Take Magic Square (b).Fig. 17. Write (Om)instad of I in the center. and kept it.

First Case of Fear of men.

A man aged about 30 came into my room with three men. He had a terrible expression of fear on his face. He began-I am very much afraid of men, my life is very miserable. I shall be very thankful to you kindly cure me.

What ! are you suffering from such fear ?

Are you afraid of all me also ?

Yes very much.

How have you come here ?

With very great difficulty. My mind has all along been oppressed with fear.

How and when do you sleep ?

I go to sleep when all have retired.

Are you afraid of animals ?

No, not at all.

What god do you worship ?

I worship Sankat Mochan "Hanuman".

Alright, I will cure you in seven days.

I asked him to bring three new pieces of cloth all coloured red to to be used as head dress, loin cloth and cover for the body.

Next day he came. I gave him the Magic Square kept for the purpose. I also gave him ashes from the sacred fire. I asked him to rise early in the morning, to have a wash in the Ganga, To put on magic squares and the red dress, besmear the ashes on the forehead and go straight to the temple and worship as usual and on his way back give one half piece to the beggar he sees first.He followed my instructions,and on the eighth day came to see me with four or five men. He was very happy to be relieved of the distressing malady. He always kept the magic square tied on the right upper arm.

Second case Aural Halucinations.

One Sunday,I went to see Shri Chandra mauli Shukla,the vice principal of the Teachers Training College. He along with his son-in-law was walking in the open. He saw me and said to his son-in-law-look here, the right man has come. He is not what he appears to be. Take him with you and show him the case. I went with him and in the way he told told me about the disease of his grand mother.I at once came to the conclusion that she was suffering,from a very severe type of Aural Hallucinations. We reached Ganga Math at Assi.

His younger grand son, aged about twenty was bitterly weeping and beating his head. The poor fellow could not understand the nature of the disease of the Lady. I gave the lady the same magic square of 5. as above. It was hung from a peg, on the wall just infront of the old lady. She was instructed to have a look of the magic square four or five times a day. After a week I again went to see Shukla Ji. He was very happy at the marvellous cure effected by the magic square. The lady did not stay at Benaras after the cure and went away straight to her own village to live among her children.

Magic Square of 6

All even magic squares are vicious and deceptive and singly even magic squares are even more treacherous by nature. They take you to the pinnacle of Glory and then throw you down with a crash. The dia-

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gonal is filled with numbers 1—6 or 1 to 10 as the case may be.

Now 1, 1+6=7, 7+6=13, 13+6=19, 19+6=25.

Number $25=5^2$ is a square, others 1, 7, 13, 19 are prime factors. These numbers form what is called the Back Bone of magic squares of 5. As against the Rigid magic squares, the Magic of six is all powerful. It is, however, quite useless against Master magic square of 5, because the Back Bone is elastic and can shift to any place at the will of the user. See the position of the Back Bone Figs. 16 (e) 17 (a), (b) Even the numbers of the Back Bone itself are elastic and can shift.

Bordered Magic Square Of Eleven.

Now let us study the Bordered magic square of 11 Fig. 29. This magic square is a very potent means both for offensive and defensive purposes. It will be interesting in this connection to mention that the military system of Changez Khan was based on 11. Ten men with one man as leader as the smallest unit of the army. Eleven was the lowest grade and 111, 1111 etc. were higher grades. It was this Mystic power of these numbers that made him the greatest conqueror of the world far greater than Alexander himself as the Historians have begun to say. In the centre of the magic square we have 61. From this centre or the heart as we may call it expands the Back Bone of the Magic Square of 5 as shown above. This hidden Back Bone counteracts the evil effects of the vicious magic squares of even order and carries you from ignorance to truth, from darkness to light, and from death to immortality.

Now we will give below the Magic of 11. We know that 1 is the first term and 9 the last in a Magic Square of 3.

Now Proceed as follows :—

$1\times 9+2=11.$

$12\times 9+3=111.$

$123\times 9+4=1111.$

$1234\times 9+5=11111.$

and so on and so forth upto nine. We can get bigger numbers by proceeding in the same way or simply by multiplication method 55,555, etc. Such were the military gradations of the armies of Changez Khan.

In this magic square each border protects the inner one.

A Miraculous Recovery.

I was about 11. we were living at Dharam Garh, a village in Tehsil Sunam in Patiala State my mother was dangerously ill. She was fighting against death. There was no physician at hand. We were impatiently waiting for the arrival of a Sadhu, a Sikh Monk. He came and brought with him a long thick chain of iron. He tied it round my mother's bed stead. Round the bed outside, outside the chain parallel lines were made with chalk powder. Each side consisted of 11 houses. Numbers were filled in the houses in the border. Sums of numbers filled in the opposite corners and opposite houses of opposite side portions were equal. To the amazement of all, my mother fully recovered in 11 days. The impression on my little mind was so deep that I could never forget it. It was the starting point of my interest in these wonderful tiny things.

Educational Uses.

Now-a-days magic square are being increasingly used in elementary text books of arithemetic. Of course, no methods of construction are given. Boys are to fill houses left vacant. They do by trial.

A father brought his son to me. He had a very great aversion al-

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most amounting to horror, to arithmetic. I tried the magic square method. This was very successful. He always demanded new and bigger ones. Small boys gathered round him to see and appreciate the wonders he showed them.

Exciting Hallucinations in Small Children.

All kinds of hallucinations can be produced in small children with the help of a magic square of 3. I very successfully excited aural, ocular, tactual, nasal and taste hallucinations in small children. Manytimes I tried and successfully produced nasal hallucinations in all boys of my class one by one.

Magic Hand Or Magic Wand

Write a Magic square of 3 fifteen times on the palms of your hand or a rod handkerchief or any thing you can easily carry about you. Black small rod will serve better. This is your magic hand or wand. You may not use any ink of powder, Better write with dry tip of your right hand ring finger.

Ocular Hallucination

Place your magic hand on the head of a small boy of 6 to 11 years, Move the hand from behind towards the eyes and suggest to him. Light, Light is coming, you will see light. Let his eyes remain closed all along.

When he says—Light has come—ask him to call any thing he wants to see— a dog, a cat a friend. He will be able to talk to him put questions and receive answers. If you repeat this for a number of days, you can ask him, in the middle to open his eyes, he will see the hallucination projected into the space outside.

Nasal Hallucinations

Now shut your Magic hand. Ask the boy to choose the scent he likes best, Take the Magic hand to his nose. He will be fully satisfied to have the smell of his own choice.

CURE :

You can cure pain of Scorpion bite by making passes on the seat of pain with the magic hand.

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J. KRISHNAMURTI AND DEPTH PSYCHOLOGY

C. LEYBOURNE-WHITE

I. The Changing World

MAN must know himself, the self that functions in every day life. Many voices urge, and few dispute this. With scientific knowledge extending into the nucleus of the atom, and advancing now towards outer space, it scarcely needs arguing that there should be knowledge of Man's own being; actual, and not merely theoretical, penetration. Man needs to become self-aware. Julian Huxley has also made clear that the evolutionary process, which is now focussed in Man, is a matter of developing awareness. This necessity for Man, to know himself, therefore, is also his destiny. It is his privilege and potentiality to come to a deeper and more extensive awareness of his whole environment, in the cosmos, in nature, in the social scene, in his fellows, but also deeply in himself there to discover,perhaps, the secret and source of his being. All this is widely recognised today, but what is being done about it ? What can be done about it ? Are we helpless, or have we the power of insight into ourselves, and dimly recognise this, yet fail to use the power, preferring not to see, not to be awakened to ourselves ? The challenge is immediate especially for who are concerned for the generation of tomorrow.

Our children and students will grow into a world wherein outer change is so rapid that their problems may bear little resemblance to those which teachers and parents of today have known. How can we best enable our young people to meet their own life in this world of flux ? We connot know what they may have to meet; old presumptions about trainning, out of our experiences,may no longer be vaild. Surely,the only true thing which we can do for children and students of today is to fit them to be human beings who can meet any and every new situation and challenge with complete newness of mind, fresh, free of old conclusions or decisions, which would be likely to be irrelevant. For this, they would need to be innerly free, with no burden of the past, with no knots in themselves—complexes, fears, anxieties, no fixed ideals, no vague phantasies, marks too of past influences.Indeed,we need to help the child to become a human being of a new order, free of any dead load of the past, and able to discover for himself a deep and wide comprehension of human existence and of its problems in and out side of himself.[1]

If this is true and is recognised, it brings to the teachers and to parents also, the inescapable challenge to know themselves to come to a real and deep contact with all that has hitherto remained hidden and

1 See also J. Krishnamurti, 'Comentaries on Living' 2nd Series (Gollancz—1958 & Harper 1958) on---Creative Happiness and Education· Education and Integration. What Is The True Function of a Teacher.

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unexplored in the background of their beings. For how otherwise could they help their pupils and students to be innerly free ? To teachers, recognising this, uncovering of the hidden regions of the self would be veritably the only significant way of life. They would also know that they were awakening where for long they and the majority of their fellows have lived in a purblind condition, although in all their traditions the urge to awakening was there.

II. Self Knowledge :

How then could teachers, all who are in touch with youth, or indeed all men, come to the way of such self-knowledge, or more, of that extensive and intensive awarness of the whole pageant of life around and within themselves, all the influences, personal, inherited and environmental, which are playing upon them ?

If the issue has been clearly recognised, the process of self-knowledge can become immediately activated, or more, once the intention is alive,extensive and intensive awareness can be a flame springing into life. But the intention needs first to be clear and strong. Without any dogmatic theory (the theories do not agree among themselves) about the inner functioning of the human being, each can discover the facts of himself for himself in direct perception of himself, yet in discussion and contact with others. To observe so directly, it is only necessary to be very alert so that the mind is being simply aware of itself, of its thoughts and feelings, its reactions, without the diversion, which is what it would amount to, of justifying oneself or else condemning.We can start without preliminaries on the process of self-discovery. For this, we have only to be aware of our reactions as we live, in our relationships in the whole fabric of our lives; with people, with all the things that surround and impinging upon us, and with the ideals which constantly play through and dominate our lives. But this will be discussed more fully later on.

From this vital beginning of the process of self-knowledge, it is then important to be in the way of plunging deeply—to trace our reactions to the causes and influences from which they spring,and to delve into the whole root and soil in which these causes and influences are immersed.It is vital that the reality of the collective,as well as the personal, unconscious be known. The human being is not summed up by what he may consciously know himself to be; beyond and deeper than that, is the unconscious,both the personal and the collective,going deeply into the foundations of what it is to be a human being. The personal is the depositary of the personal experiences and memories; the collective is the depositary of the experiences and memories of our family of our nation,of our race,of Man himself, with vestiges still of our primordial forbear, deep in the hidden recesses of our being. All these fears, anxieties, hopes, urges, despairs, ideals,traditions,conventions,all are there and alive in our very beings today. Today we are influenced, though usually we know it not, by the heritage of the past ages in us, and by the marks of our own past experiences.

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With all this load upon us how is it possible to meet the new experiences, and challenges of the new day, except with the impress of all this old within us ? It is surely necessary, therefore, to know what we are, for the sake of the critical moment of history in which we live, but also for the sake of ourselves and our children. In general,we, and soon they, as they grow up, are confused and unhappy, torn by contradictory hopes and urges: In conflict within even though much of it may be successfully repressed from recognition by consciousness,these hidden contents somehow find a way out,for they are loaded with energy,the energy which is our life—they find a way,often through the body,and hence the wide range of psychosomatic illness which has its root within the mind, the psyche.

III. The Mind's Working:

How then can we all understand ourselves and penetrate deeply into the very roots of the inner influences which are shaping and moving our lives ? Knowledge of certain facts about the working of our minds and beings. may help to quicken and to deepen the active process of self-knowledge.

(1) **Conscious understanding to the full:**

There must be no under-estimation of the part to be played by the conscious mind. In relation to any and every life situation. whether problem or not, it is for the conscious mind to do its utmost to explore the whole field of it, all its ramifications—to think into, feel into it, absolutely as far as its powers of understanding permit. This is true of all the vast range of the problems which twine around our lives; the problem of **fear**, petty and awful, of **authority**, both the swaying exercise of it, and subjection to it—and our seeking it; of **ambition**, the pursuit of fulfilment of our lives in success and the applause of the world; and of the **frustration** we suffer when we cannot achieve our goal; of **attachment** in relationship to people, with the void when we feel let down, forsaken,the aching loneliness; of **love** and **hate**, **marriage** and **sex** and **parenthood**,and all the complications in which we involve ourselves along this road; of **jealousy** and **envy**; and all the train of the situations which are the woof and warp of most of our lives. There needs an intense exploration widely and deeply, of all this, with the maximum of penetration that the canscious mind can bring. It must be clear that this is not to be a merely intellectual dissection, a translation from one word into another, on the level of mere word-play, or verbal logic. Nothing would then happen to further real self-knowledge. That this last is the beginning and the end of the quest needs always to be very clear. All discussions will then be motivated, in all those taking part, by this quest, which means by the awakened desire for self-discovery. If this is clear, there will be no sense of obligation, of some imposed 'ought' nor will there be any tendency to escape into word-play.

(2) **The unconsciousness is active.**

When the conscious mind has thus played its part, it is quiet. The

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intelligent pursuit of self-knowledge will then be based upon clear understanding that the unconscious in ourselves is a living part of us—and with often greater potency than consciousness, so that in ignorance of it we are driven, lived by what is hidden, rather than by the conscious mind. It is well to know also that all psychological contents submerged in the unconsciousness tend to be contaminated with others. One aspect merges with another, and the confusion influences consciousness. The whole of consciousness, unconscious as well as conscious, is organically alive and if we were to observe it, objectively, dispassionately, we could find out that through the stress and strain of the conflict and tensions that wrack us, there is discoverable a tendency towards a resolution of it all. These processes usually go on in the unconscious and are not joined to consciousness; and in the critical stress of a tormentuous tension as C.G. Jung has pointed out, some symbol could be discovered expressing this movement towards harmonising the contradictory pulls. But all this remains a shadow play of symbol unless the conscious mind comes into the picture and the whole significance is integrated into consciousness. To him who has capacity, these symbols may find expression in some outer form, as a work of art, literary, visual, plastic or even musical. But still it was the product of that state of tension. And in fact, the true challenge and possibility from such a moment is not a release through expression,whether with great or little capacity, but the opening up of the whole state of conflict, digging into ourselves, or better, letting the issue unfold itself to consciousness.

Where the conscious mind actively puts life, energy, into exploring its own problems, disturbances and satisfactions, then it can await, and with confidence, the cooperation of its own deeper layers, of the unconscious mind. The latter cooperates in a movement to expose itself. Then, a dynamic process is set into motion wherein the conscious mind can discover, even in waking hours aspects of itself hovering in the background and on the borders of itself,aspects which had formerly remained hidden. If we are very alert, we can also see ourselves exposed to our selves in our actions and omissions, in our gestures, and our resistances. All our senses will convey to us the message of ourselves The penetration needs to be increasingly deep, not repeatedly seeing only the outermost expression of any problem, but as already mentioned, pushing it back into its hidden depths and roots in the causes and influences from which the final expressions are springing. This calls for and intensity of dwelling with a problem, to probe it to its core.

It is vital and rational for the waking mind to go thus to its limit in awareness. But, in self-discovery, especially at its beginning, there will also be communications from the unconscious during sleep, as dreams. When the surface mind has quietened down, those deeper parts of ourselves, never asleep, push forward messages which the noisy hours of the day may have thrust aside. And, indeed it often appears that the more

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waking conscious is alert in self-awareness, the more the deeper mind cooperates, in and out of sleep. Thus, during the day it may be impossible to give full attention to repercussions in ourselves of some outer challenge; but the deeper mind cooperates and holds for us in readiness for the moment when that inner attention becomes possible. This is an inestimable help, for it is this active alertness during the waking hours that it is wisest to cultivate, listening to everything, from outside and inside. But even then, there will often be dreams. That same intelligence would want to understand their messages also, to understand every movement of itself. But our dreams are in the language of pictures and symbols. The knotty question is therefore, met: how to interpret this strange language. Once more the various theories about interpretation may be and are best avoided. The mind may confront the dream as a drama portraying something of itself where there is no programme,nor is the theme already known. But out of its approach of enquiry, the mind may readily be able to recognise the significance of certain of the pictures as aspects of itself, of its attitudes It may observe with special care the psychological quality or condition of the player who represents the dreamer's conscious mind, the figure he knows. Then, having looked at the parts, the conscious mind can only be still and let the drame-picture speak as a whole. There is then the possibility of the whole delivering up its whole message.

(3) **Conscious and Unconscious balancing.**

The conscious and the unconscious are not, however, separate and distinct from each other; they merge imperceptibly and constitute in fact the whole consciousness. The whole is that life which is ourselves.though only part is fully known to us, above the surface of the mind, and the much greater part is in its hidden reaches. But it functions as a whole, and any movement to imbalance in conscious attitude is compensated by a move in the opposite direction in the unconscious, and proportionately, like the awing of a pendulum. Thus, a conscious attitude which is too little, depressed or deflated,is offset by an unconscious degree of bigness, elation or inflation. And contrariwise, a hidden inferiority is offset, and so appears in the conscious personality, as a superiority, swagger,inflation. White outside, black inside; black outside and white inside. But black and white are both expressions of extremes in human qualities.There is not only the tendency to swing from one extreme to another—from one position to its extreme opposite. Indeed, as can be seen, this is perhaps another aspect of that very pendulum like, or balance-like, characteristic of the human psyche in its inherent functioning.In actual experience it is well to be vigilant in watching for this movement of **reaction** from one attitude to its opposite; for this opposite psychologically is not a change from the original position, but inherently is the same. Thus, in reacting against drunkeness, the subjection to the habit of consuming alcohol,the teetotler has not freed himself from the fascination and power over him

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of alcohol. The teetotler's life is still dominated by alcohol, in the very fact of his attitude of total denial. In our many habits and attitudes we also falsely imagine that by reacting into the complete opposite we are fere. But the opposite is an equal opposite;we are not free.

Life is a mirror-

Wherever an outside stimulus calls forth a reaction which is charged with emotion in us,then that stimulus is striking an answering chord in us, setting something similar in ourselves vibrating. If the intention to self-knowledge is real,the concern will then be not to criticise or attack,nor even to praise and admire the outside source of the stimulus, be it object,idea,or person, but to explore the whole content of this aspect of ourselves which has been exposed by our reaction. This is to know life as a mirror to ourselves,all our relationships, whether to the inanimate or animate. If life is so lived,none is wasted in fruitless encounter, argument, anger with outer events or people; nor in vain efforts to change the outer so as to avoid an emotional fire being thus roused in ourselves. Rather, will the interest turn upon the source of the fire within, and the concern be for change in ourselves through this turning of the light of awareness upon corners which had hitherto been closetted in darkness.

Life will also mirror us to ourselves if we can see ourselvee as innerly, psychologically, involved in every situation in which we find ourselves outwardly and physically. If we can ask the question: ;why am I involved in this?' there may come surprising and Illuminating unfoldment. Something within myself must correspond to the whole situation and therefore I am involved in it. If one can at least see that,and pose the question 'why',light may be thrown upon some dark corner of the self, though that light may not, or not always,come in a direct answer. But the whole process of knowing oneself in such questions and awareness becomes an integral understanding of life. as we are active, and it is not a process of seclusion or withdrwal into a corner of self-absorption.

(5) Observe Resistances:

A resistance to a conscious attitude from the deeper in ourselves may be something which we would do well to respect; or,on the other hand.it may reveal another side of oneself, contradicting and trying to inhibit some attitude of consciousness which is itself truer. It is, therefore, very necessary to observe resistances and to find out in ourselves the basis of the conflict, from what it springs and what it signifies. The unconscious content is neither truer nor falser than consciousness. It fills out the picture of oneself at any moment. It is a fact, however, that often the surface mind may be very rigid and the deeper background of the mind may be more receptive, especially to something new. For one who wants to know himself truly, therefore, and not to be tripped up by the appearance of the surface mind, it is a good maxim to say to oneself, 'it depends how I feel', and to observe deeply and with subtlety, movements from the unconscious which are at variance with the surface mind.

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6 Change

The quintessence of the whole matter, then is how to listen to, and how to understand, all that we hear by day as well as by night, and how there may come about fundamental transformation in it. It is well-known that there are various theories to label and interpret what we experience. But should we not enquire somewhat profoundly into this whole question of interpreting of the mind by the mind ? Because this consciousness is one inter-related function, without clear separation anywhere, and also not separated into distinct conscious and unconscious, how could it be that out of itself and entirely within its own functions it could solve its own problems, and bring forth something wholly new ? The conscious cannot separate itself off, and free of influence, clearly interpret, penetrate, the unconscious and bring about a wholly new quality into its own being. And the challenge which has set us upon the quest for self-knowledge is so immediate, so inescapable in this middle Twentieth Century that it must be evident that partial changes, small modifications, touchings-up of our old condition would all be wholly inadequate in response. A change in the very foundation of our thinking, feeling, in our whole living is assuredly demanded. The question confronting us, therefore, is not less than how, by what approach, could such a fundamental change be made possible.

From this point of view, it would not be enough to dive, as it were equipped with aqua lungs, into the depths of our unconscious, there to encounter buried wrecks of fabulous fascination, wrecks of ships which once had sailed the surface seas of our minds,or the minds of our forefathers of ages past. To discover as we could, such remnant in our selves of our national, and racial heritage, of our primitive forefathers themselves, to make contact again with all that in our selves, and to plunge into it once more in absorbed fascination, would not be the answer to our own problems nor our childrens' nor to the world's need. To establish again a real contact with all this which lays submerged in the hidden mind,is unquestionably vital. But not to contact alone. These contents may have their alluring quality, the layers in ourselves far other than the appearances and world on the surface of our living. But the real psychological, educational, and indeed spiritual, need is such that it is necessary to keep the vast challenge always before us. It is surely not less than the need for a new generation of men and women, who will have a whole and integrated comprehension of human livings who will be able to, and will, ask fundamental questions: 'what is it all about' ? 'Why this world divided against itself and Man's incredible in humanity to man; Man alone among the higher animals want only killing his own kind ?' It is not abundantly clear that something in the way of a new quality of human being is needed ? And if so, there can clearly be no resting with the fascination of more symbols. How, then, can the vital change which is needed come about ? It must be something of the nature of a veritable

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psychological 'mutation' one might say.

It would seem first of all necessary to see clearly that the mind actively working upon itself connot renew itself. If that is completely recognised, then it is obviously useless for the mind to approach its own problems with any attitude whatsoever, be it ceriticism. appreciation, excuse, explanation, interpretation, nor even an attitude of driving desire to slove the problems, or to change itself. For all of these are obviously aspects of activity in the kaleidoscopic mind which, in all the aspects together, is the self we know. It is in confusion, contradiction. disturbance, and obviously every movent it makes, or action it takes, will have these same qualitites—and not clarity, nor newness. It this dilemma, what can the mind do ? Obviously nothing is left to it but to approach itself merely by looking, being aware of itself, its problem. By looking thus, by directly confronting itself, what it looks at does change. This we can each discover by experimenting for ourselves. Fortunately for us, we can indeed discover such a possibility. Otherwise, we should be confronting a stalemane; and instead of the human mind being the possible growing point of evolution, we should experience it as a dead-end. In fact, a directly empirical approach can test and find out that if the mind as we know it is simply, but directly and clearly, aware of some aspect of itself (the vast accumulation of buried hopes and fears, anxieties, traditions, conclusions and conventions etc.) but then, recognising its own limitations, does not stir in any attempt to act upon or change what it is aware of, then in fact there is a change. Is not the mind which has thus freed itself of activity, and is silently observing itself, is not such a mind already, in a new condition, radically different from the former condition of fretful self-centred activity, centred about the self and limited by the self? By seeing the futility of actions upon itself out of this centre, is not the mind in this moment free of the centre and all the conscious and unconscious background which this implies ? And, no longer confined within the limitation of the field of the self, is not the mind itself without limit? This new mind, as we might truly call it, is thus bringing into play a field beyond the narrowness of the ordinary mind limited to the self and its concerns.

As things are, the energy consumed by the buried parts of ourselves, the activated ghosts of time-past, combined with the energy demands of the body and of our practical and intellectual affairs, leave little or none for creative expression at any level. But the whole imbalance of this is changed by the act of the mind's ending its outpouring of energy in incessant movement around the self. This movement is not easy to bring to an end, even for a moment. There is the inherent tendency of the mind to move endlessly in this way. But if it happens that this movement is stilled because there has come the recognition that the mind is helpless to bring some complete newness to itself, then a store of energy is freed to flow into new and creative channels. This energy, is set free from the

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whirl of the self, and all its background of memories and knowledge (and, in the moment of total stillness free too from practical or intellectual demands). Life is set free. A new quality of mind, a new mind, clear and fresh and vital, capable of real creativity has come into being with the stillness: Its whole energy free and yet poised, held, it has at once great clearity and great potency. Out of this mind, clear and strong expression of action can come : innerly in the immediate moment, but outwardly when the time for that comes. It is also open to receive that which is beyond itself, as it will discover.

The beauty of this approach, opened up for us by J. Krishnamurti ,[1] is that the end can be, and indeed must be in the beginning. From the beginning it is possible and necessary for the mind to apprach its own accumulation, with the freshness of silent, clear, vital awareness—simply seeing, bringing to it no burden of interpretation, (which would be bringing not newness but the past to the past), no demand, and no searching or striving towards a goal. The mind is silent, but alert and vigilant not to fool itself by its tricks and manoeuvres. This new quality of silently observing would then begin to operate, as any one could readily discover. Out of the awareness there may come to consciousness a flash of wide understanding. Even without such a flash, the change works in the unconscious if the mind is truly open, listening to its own murmurings. In any case, the understanding and change are in the depth of the situations in conscious and unconscious at the moment, and in no sense a tracing to a cause back in time. Indeed, the understanding which comes to the mind in such a state is in no sense the product of time at all neither analysis back into chronological time, nor gradual accumulation of ideas taking time. Moreover, if the mind were in such a manner aware of itself, it would have the quality of being aware, as it were, from outside of itself. It might thus see the whole working of the mind in the self-centered activity, as the central problem from which all other problems emanate. If and when it did so, there would be the possibility of solving the many problems in terms of this one crux of the whole psychological issues. For such a mind, there is no separation between inner seeing and outer seeing. It perceives totally. Because it is free not bogged down in whirlpools of its complexes, nor even the activity of rational deductive thought, it can perceive the so-called outer moving with the so called inner, often in striking syncronicity--even as C.G. Jung has observed. The mind would be aware of its own functioning, but the silence would bring to it also an extensive awareness of the whole context of its being, of nature, society, of the individual neighbour. Such awareness therefore, could not become a mere morbid introspection, an incr-

1. See "First and Last Freedom" (Gollancz 1954) on:-Self-knowledge : Awareness. The function of the Mind. Self-centered Activity: On the Conscious and Unconscious Mind And "Commentaries on Living" (Gollancz 1956) on :-Awareness .The Conscious and the Unconscious : Thought & Consciousness.

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ease of the self-centered activity. Rather it could become increasingly aware of the narrow limitations of that activity; how it excludes and cuts individual off from the whole stream of life. And such awareness would wear away those limitations until the mind became vaster, its compass extended; veritably a new mind with wide-flung frontiers, or no frontiers. To such a mind, in constant change, constant renewal, life becomes an immediate absorbing interest. The awareness of itself in utter honesty is hard work; but if that is undertaken, the consequence is an emerging sensitivity and discovery of life, as it could never be known to the mind imprisoned by its own self-absorption. There is no searching, no goal. The fulness of living is here and now. Such living is its own joy. Such individuals there must be amongst men and women everywhere, especially these who are in contact with the next generation.

The Author acknowledges with deep gratitude her indebtedness to J. Krishnamurti's penetrating insight into the human mind and beyond it, and to the wide explorations C.G. Jung into the collective unconscious and its symbolism. She naturally takes complete responsibility, however, for every thing expressed here.

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PROJECT PROMETHEUS AND KRISHNA

OLIVER L. REISER

AT the ACCRA Assembly, meeting in Ghana from 21st—28th June, 1962, devoted to discussions of "The World Without the Bomb," a proposal designated as *PROJECT PROMETHEUS* was outlined by Julie Medlock and Oliver L. Reiser. Here a plan was presented looking toward the construction and orbiting of a global communications satellite to be owned collectively by the peoples of the earth, therby serving as a common symbol of the unity of mankind, the planetary species. This "Project Prometheus" is presented in visual form as **Diagram I.**

In the words of the official document, this was the theory of the proposal:

> "That the United Nations invite and authorize the USA and the USSR jointly to construct and orbit a communications satellite, to be known as **Prometheus**,—a global radio and television satellite to be owned and paid for, perhaps at least partly by popular subscription, by the peoples of the earth."

The explanation for the proposal was as follows:

> "Mankind is now moving into the era of the conquest of outer space, communications satellites, controlled thermonuclear energy, electronic computers, automation in industry controlled photo-synthesis, and many other revolutionary developments. The benefits of such discoveries in science and technology should be available for welfare of the entire human race. It is unthinkable,for example,that the varied opportunities opened up by the advent of communications satellites should be limited only to those nations which can afford to pay for commercial services.This would be missing the unprecedented opportunities for cultivating world good will and understanding.All humanity has a stake in the potentialities of such novel and revolutionary developments."

In the official document it was then proposed that the programming for **Prometheus** be supervised by an international committee of scholars responsible to UNESCO,and that these programs be used for world-wide public education, disseminating impartial information on methods and techniques for world objectives and ideals.

Here—it was suggested—is one place where international cooperation is possible, without creating tensions and rivalries. If the USSR is unable to collaborate, the U.S. could supply (not donate) the satellite to the United Nations—thus bringing fire and light from the heavens above to the billions of people of the earth.

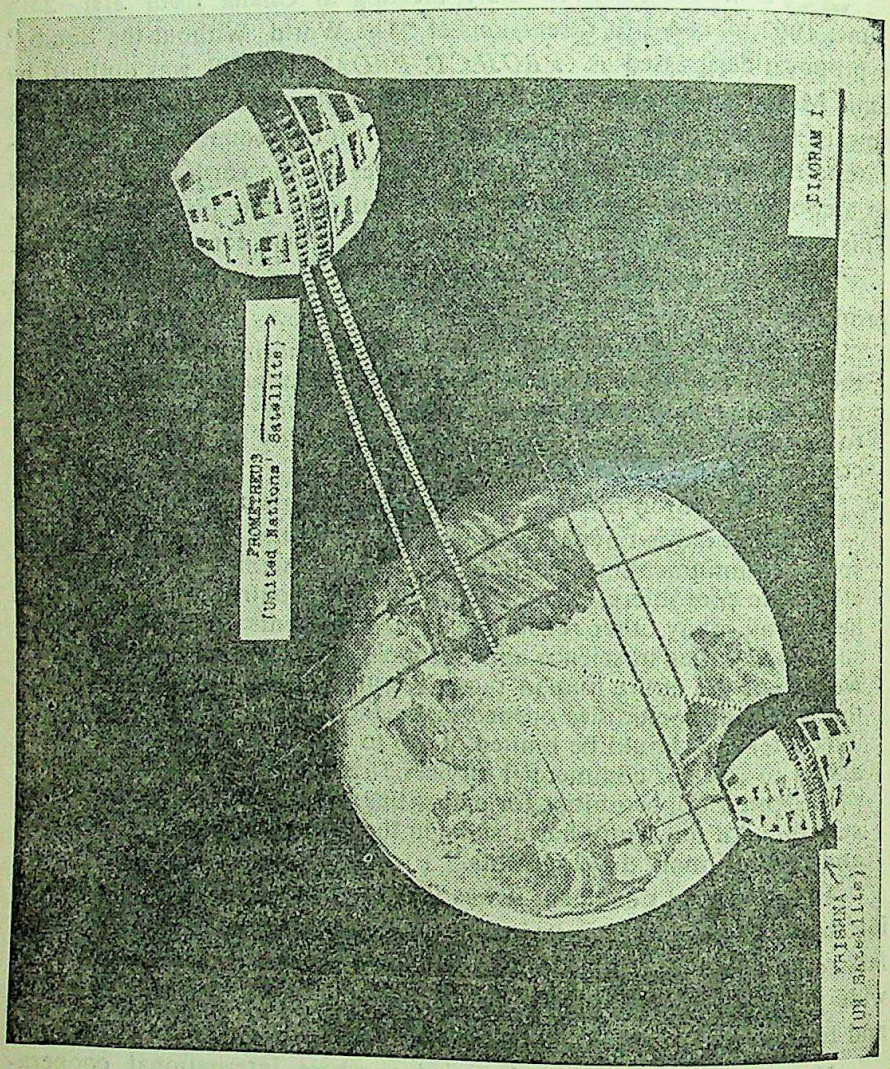
This proposal elicited a number of favorable comments. My letter to the *Saturday Review* (October 27, 1962, p. 25), calling attention to

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this Project, brought forth inquiries for more information about the proposal. Meantime, my own ideas about the possibilities of using the skies above for global communication and improved world understanding did not remain static. It is my purpose here to outline these further dovelopments.

Those who are familiar with these matters know that any satellite which approximates the orbit of **Telstar** would be limited in time to



about 20 minutes per day (for each orbit of the earth), and even this broadcast period would be available to peoples within limited geographical areas. This places severe limitations upon the proposed uses of **Prometheus**, especially since this satellite is designed to serve all the nations of the earth—Asia and Africa no less than the nations of the Western World.

One way to avoid this difficulty is to have several satellites in orbit

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at a distance of 22,300 miles above the earth. At this distance (height above the earth's surface), the orbital speed of the satellites would be synchronous with the earth's period of rotation, i.e., the satellites would remain at the same location over the rotating earth. Ideally three satellites would be required to create a global relay system, with one over the Atlantic,another over the Indian, and a third over the Pacific Ocean; and in that manner the synchronous system could continuously send out programs to any points on the earth except the poles. Indeed, this is planned by NASA.

But because of the added expense, and for another reason which will be made clear in a moment, the present extension of the UN satellite project calls for two communications satellites to be placed in orbit as strategically as possible in order to reach the maximum number of peoples of the Eastern and Western hemispheres.

The second satellite would be placed somewhere over Asia. As a companion satellite, named **Krishna** for reasons of historical symbolism, it would share with Prometheus the task of making available to the world the traditions, achievements, and ideals of the other half of the world.[1] It would involve a considerable oversimplification to say that **Krishna**, symbolizing the religions, arts, and philosophies of the East, hovering over the Atlantic Ocean, could communicate to Europe and the Americas the substance and spirit of Oriental cultures, the ancient East; while **Prometheus**, hovering over the Oriental world, could bring to the East the sciences and technologies of the West—the mastery over the external environment. Together they would cover the earth with two radiation belts of thought, and in that respect be comparable to the Van Allen radiation belts (see **Diagram II.**).[2] In a sense, these two global satellites could be personification of the "yang" and "yin" of ancient Chinese tradition. Presumably, one could exploit this male-female analogy still further—perhaps somewhat after the fashion of Professor Northrop's **aesthetic** and **theoretic** components. Beyond that,one could also conceive of the introduction of "teaching machines" in **Prometheus** and **Krishna** for the speeding up of the education of the underdeveloped peoples of the earth. There just simply is not any more time in our rapidly changing world for the slow processes of education—we must get rid of illite-

1. The practical consequence of nuclear fission was the atom bomb, bursting into a blinding radiance so intense that Dr. Robert Oppenheimer--witnessing the explosion and recalling his studies of the BHAGAVAD GITA---was led to exclaim: 'It was as if it were the glory of a thousand suns.' This quotation of Arjuna in praise of Krishna suggests that to the physicist the terrific white light produced by the splitting of atoms of the bomb is like pure spirit escaping into matter. Another savant, more given to the uses of Occidental imagery, would perhaps have thought of this as like the legend of Prometheus drawing the energy of fire and light from the heavens for the weal or woe of mankind. But then we have already given PROMETHEUS a job to do, complementary to that of KRISHNA.
2. This idea was first outlined in my atticle, 'The Radiation Belts of Thought, 'published in DARSHANA. Vol; II, 1962 (Oct.), 100-127.

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racy within a generation, if we are not to lose the battle of man.

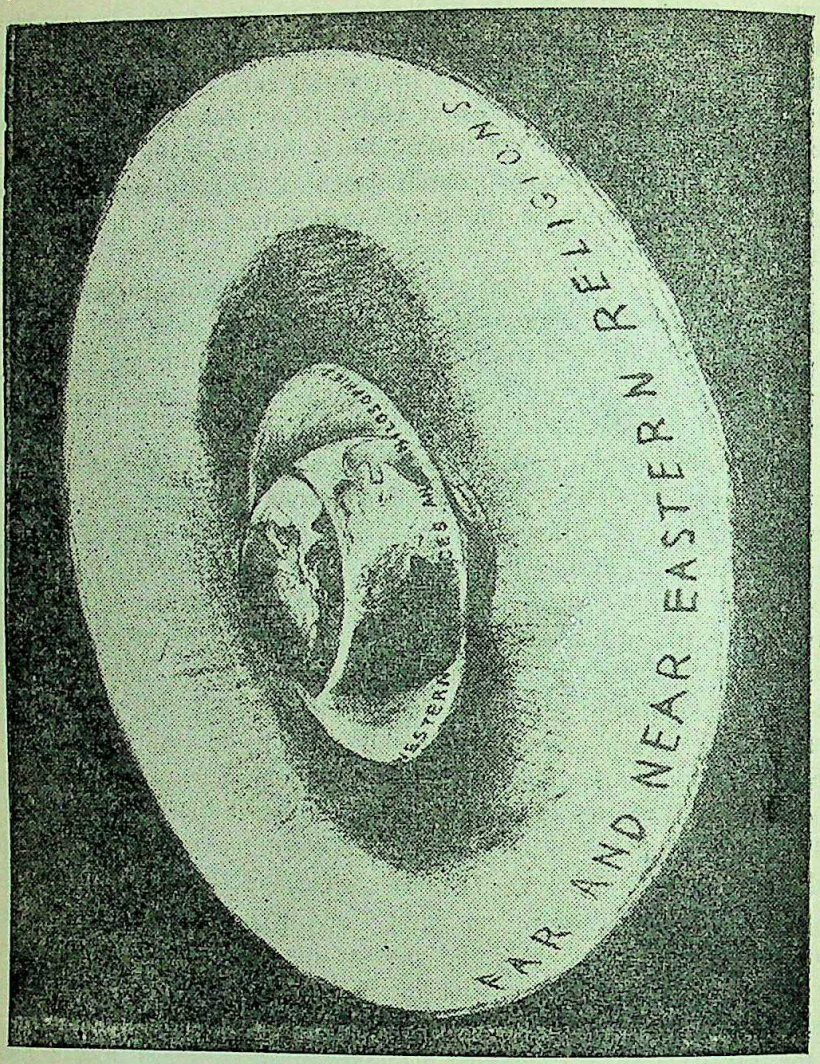


Diagram II

The foregoing exploratory probes into the future inevitably lead to the suggestion that the world needs one universal language for global communication and understanding. This "one language for one world" might well utilize the *Semantography* which was perfected by C.K. Bliss in Australia. Such issues, however, are not among the initial problems to be faced, which are primarily practical in nature.

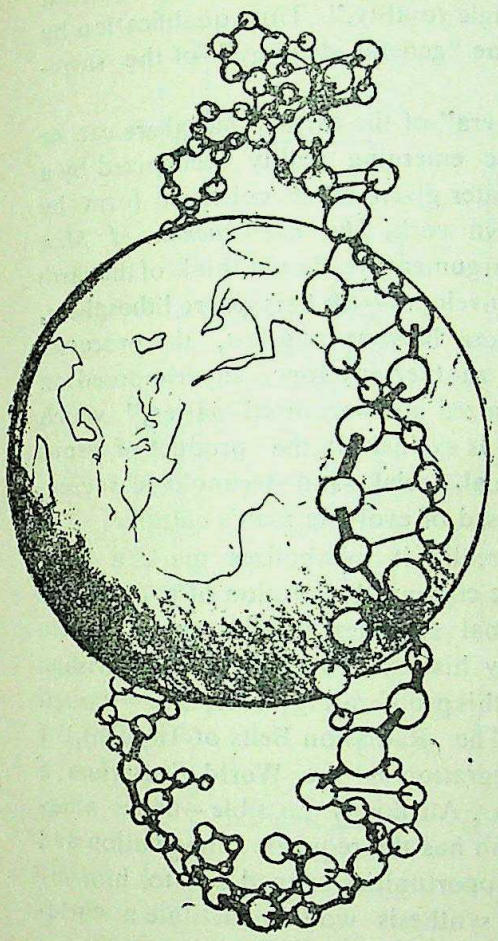
These fragmentary suggestions are sketchy in nature; but they do hint at the breathless and awesome possibilities opened up by the new technologies. If the United Nations satellites were synchronized to the revolution of the earth, each could broadcast to its own hemisphere the radio and television programs woven around the key personalities, possibly as I have previewed them in Diagram III In this manner a good part of the planet would be covered: we would "put a girdle 'round the earth"—as

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Shakespeare foresaw—eventually to bind the members of human family into the form of unity. All this, of course,would have to be approved by a UNESCO committee of world scholars, still to be appointed.

The East-West Radiation Belts Of Thought



West	East (far & near)
Thales	Krishna
Pythagoras	Akhenaton
Anaximander	Moses
Empedacles	Zoroaster
Democritus	Buddha
Socrates	Mahavira
Plato	Confucius
Aristotle	Shankara
Euclid	Ramananda
Archimedes	Lao Tze
Ptolemy	Patanjali
Galileo	Jesus Christ
Kepler	Mohammed
Copernicus	Baha'u'llah
Newton	Tagore
Darwin	Gandhi
Marx	Bhave
Freud	Sri Aurobindo
Einstein	Radhakrishnan

Diagram III —*By* **William Caldwell**

One may well inquire,what is the end-result of this tremendous straining toward world communion and unity?The briefest answer may be that this is the only foreseeable way of avoiding world chaos.Somewhere, sometime, somehow, we humans will perforce find a way to send up a flag (satellite) around which the whole world can rally—else we descend downward and deathward toward collective insanity and mass suicide.It is not possible here to recapitulate the argument as set forth in my essay, "The Integration of knowledge as a Basis for a General Ideology,"which appears in the volume **The Humanist Frame**(1962),edited by Sir Julian Huxley.It should be noted, however, that my plea for a World Philosophy ("general ideology") to serve as the guiding field for man's future conscious evolution is not the voice of a solitary figure crying out in the wilderness. My own first motivations where inspired in part by that dreamer of utopias,Mr H.G. wells, whose treatise on **The World Brain**(1938)pain-

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ted a compelling Picture of the job that needs to be done. Beyond that and somewhat later, the article by W.I.Vernadsky[3] called attention to the same process of social synthesis. **"whereby mankind became a single totality in the life of the earth"**—this, be it noted, "in the interest of freely thinking humanity as a single totality." This qualification by the Russian scientist should relieve the "general ideology" of the suspicion of "totalitarianism."

In this fashion the "psychozoic era" of the earth's **biosphere** can be transformed into the *Nooesphere*, the emerging reality recognized by a French mathematician in 1927 and later given more coherent form by Tielhard de Chardin in his well-known work, *The Phenomenon of Man* (Eng trans., 1959). According to the argument, we should think of the earth as a sequence of spherical shells or envelopes—the **barysphere, lithosphere, hydrosphere, atmosphere**, and **biosphere**. Now at long last, the processes of cultural evolution have generated another envelope, superimposed on the biosphere, i.e. a "sheet of humanized and socialized matter," which is the *nooesphere*. This new envelope is exclusively the product of genus *Homo*, and embraces man's intellectual, social, and technological creations—in short, the **ensemble** composed of evolving man's cultures.

This concept and the emerging reality it symbolizes mark a great advance in human development. The continued evolution of man will be considerably accelerated by the global satellites which even now are coming over the horizon of planetary history. **Prometheus** and **Krishna** may well symbolize and adumbrate this proliferating *Nooesphere*—though for reasons given in my article on "The Radiation Belts of Thought," I prefer to designate this organ of integration as the **World Sensorium**, a term I have employed for many years. All this is possible—under whatever rubrics we prefer—provided man has the requisite imagination and will to discern and grasp the great opportunities opened up to him by his new technologies. This emergent synthesis would constitute a world-wisdom for mankind, surely a consummation devoutly to be sought.

We have already made the point that the programming for the planetary satellites will stress cultural and educational projects. The "brains" behind the programming for the impartial dissemination of information and the integration of knowledge might well be constituted of the members ("cortical neurons") of a World University (see Diagram IV).

One immediate project could be the "Voice of World Science" program (Diagram IV). Ultimately—before the 20th century is over—it might be feasible to activate the "Voice of World Philosophy," disseminating what could be called a **Cosmic Humanism**. The institution of a world federation might properly represent one of the more remote goals. Meantime, world-wide public education, explaining the methods and techniques for the implementation of presently accepted planetary ideals and

3 Cf. 'The Biosphere and the Nooesphere', by W.I. Vernadsky, 'American Scientist', Vol. 33; 1954, pp. 1-12.

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objectives, would constitute one practical goal of Project Prometheus-Krishna, thus providing some creative release for the mounting tensions

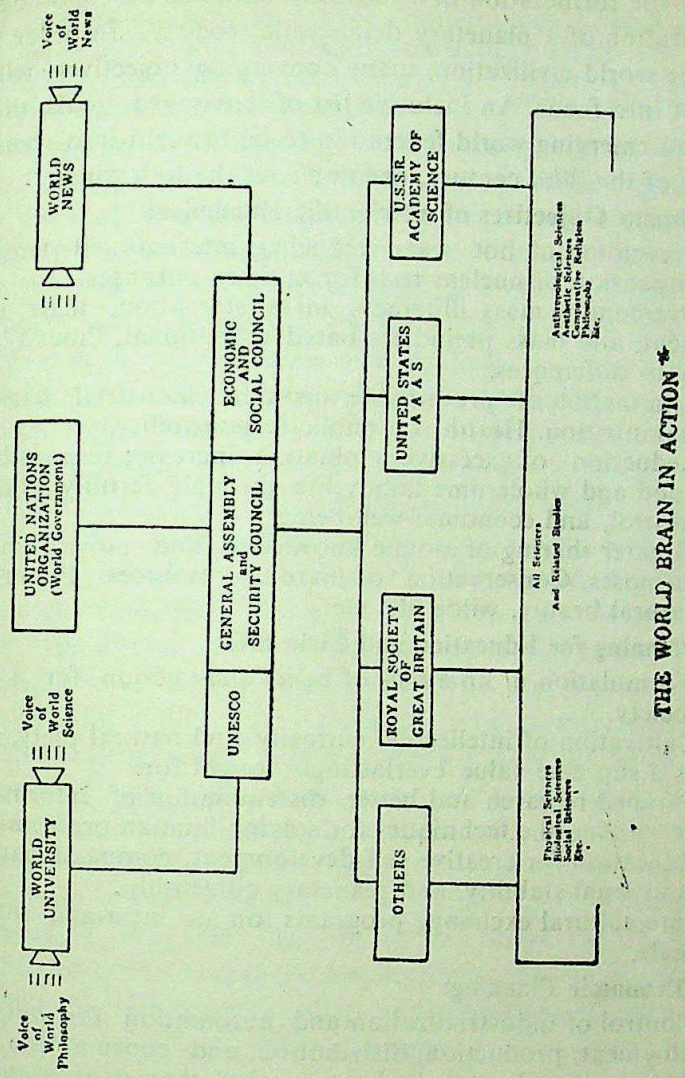


Diagram IV

*** From The Integration of Human Knowledge**
By Oliver L. Reiser (Porter Sargent, Boston, 1958)

of the anxiety-ridden millions of human beings milling about on the surface of the earth.

Background on which Satellite Communication could be based: the guiding field for an emerging Planetary Society

It is the purpose that galvanizes men into action. Therefore, the secret of a happy world and an enduring peace must be a worthy social purpose—let us say a planetary purpose. Scientific humanism is permeative in spirit. It is concerned with unifying the integrative tendencies already in existence. Its function is cohesive. Its instrument is education. Its goal is cosmic.

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As a "philosophical technology" which supplements the established technologies of industry and medicine, the scientific humanism projected will aim at the formulation of a universal ethics as the guiding field for the proliferation of a planetary democratic society. In order to achieve this mature world civilization, many converging objectives will have to be brought into focus. An inclusive list of envisaged goals, the minimal basis for an emerging world federation to be brought into being in the remainder of the 20th century, encompasses the following:

I. Primary Objectives of a Scientific Humanism:

(1) Prevention of hot wars, reducing international tensions, and suspension of nuclear tests for military purposes.
(2) Overcoming mass illiteracy, mass starvation, mass unemployment, and mass prejudices based on national, "racial", and religious differences.
(3) Elimination of preventable diseases, industrial hazards, and malnutrition. Health is a public responsibility.
(4) Reduction of excessive population increase; responsible parenthood and wholesome family life through fertility clinics, birth control, and economic well-being.
(5) Greater sharing of atomic knowledge and power for peaceful purposes. Conservation of natural resources. Preservation of natural beauty, wilde life, etc.

II. Planning for Education and Civic Life:

(1) Formulation of an ethics of belief and action for a planetary society.
(2) Cultivation of intellectual curiosity and natural piety, with truth as a supreme value everlastingly sought for.
(3) Planned research and better dissemination of information, universalizing the techniques for solving human problems.
(4) Education for creative self-development, compassionate thinking emotional stability, and planetary citizenship.
(5) Intercultural exchange programs on an intra-and international scale.

III. Economic Planning:

(1) Control of industrialization and automation for optimum employment, production, distribution, and consumption of goods and services. It must be kept in mind that greater consumption is not necessarily a goal in itself; it can lead to bad effects as Joseph Wood Krutch points out in his book, *Human Nature and the Human Condition*.
(2) Public Housing, with higher standards of living (including refrigeration, santitation, heating, etc)
(3) Reduction of tariff barriers and the development of international currency stabilization.
(4) Socialized insurance against unemployment, old age, etc.
(5) Socially owned and co-operative presses and publishing.

IV. Political Planning:

(1) World planning of public works programs : highways and tunnels connecting continents and nations.
(2) Dissemination of cultural achievements and facilities, with the products of humanistic activities made available on an increasingly broad base of enjoyment.

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(3) Raising the standards of appreciation in mass media entertainment (cinema, radio, television, etc.).
(4) Mobile loan collections and regional library facilities.
(5) Arts are not luxuries for the "intellectuals"; but arts are important parts of morally responsible actions which are necessary for creative self-development, social participation, and a source of proper pride in social achievements.

The foregoing list of objectives is comprehensive, integrative—and "utopian." But if it is possible to build an "inter-thinking" group of friendly peoples the world over, the foregoing program (or some mutually acceptable modification of it) is attainable. If men can voluntarily and co-operatively envisage the humanist frame for a world civilization based on a universalist ethics, we can transform the earth, its teeming populations, and man's place in the wider scheme. For example, an immediately attractive prospect for international co-operation-thus "reducing tensions" between "East" and "West"—arises from the growing psychosocial compulsion toward a "combined operations" program for exploring outer space, with a correlative drive toward supernational (global) space laws for artificial satellites and interplanetary space-ships and other extra-terrestrial conquests by man, the cosmic species. Already OZMA is reaching out in search of intelligent beings in other universes. Meantime, here on the earth type of ideological unification and social integration we have envisioned is essential if we are to preserve the best elements of our heritage of cultural diversities—indeed, if man is merely to survive.

If all the enlightened peoples of the world would close their ranks, would pool their strength, would raise with steady hands the oriflamme of faith in human intelligence, the enemies of humanity—those who are mutilating and plowing under the truths of science and the highest social values—would come to an inevitable defeat in the parliament of man. Believing this, scientific humanism offers itself as an emerging philosophy of synthesis, a social lens to focus and unify human vision, thus giving coherent form to collective aspiartions and purposes.

Addendum

Of course, there will be practical problems to be solved. No satellites as now envisioned can broadcast radio or television directly to home receivers. This means that each nation must have its own internal distribution system, including necessary ground facilities for sending, and distributing the cultural and educational programs. In "backward" countries, where radio and television sets are rare, perhaps facilities for group audiences could be employed (churches, schools, and the like). These are practical and technical problems which can be overcome when the will and the money are mobilized. Also we will need to know more about the Van Allen radiation belt and the "radiation sickness" that can afflict communication satellites when we tamper with this belt.

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DECISION-MAKING AND INTELLIGENCE
A Research Project

ARTHUR LAPAN

THE research project I am here proposing assumes that thinking and the process of decision- making have one and the same structure. The decision-making process is a reflective process and thinking requires making decision. Ordinarily we think about precisely that— what we are to wear, to buy, etc., in short, about decisions we are to make. Even when we are thinking about matters which are not of immediate concern to us we have continuously to make decisions; we have to define our problem and decide what is central to it and what peripheral; we have to seek information and decide what is relevant; we have to decide how trustworthy the information is; we have to develop hypotheses and decide whether they are worth pursuing; we have to work out their implications and verify them and, on the basis of that, choose from among them. All this is decision-making.

Because of the equivalence between the reflective and the decision making process, practice and proficiency in the one should engender dispatch and proficiency in the other. This should be true of all aspects common to intelligence and decision-making. Thus, in thinking one has to consider what would occur if certain things were the case; we have to rehearse situations internally, as roles; and the same is true of decision-making. In day-to-day living we have to enter into the position of other people, we have to evaluate how they feel and how they will act, and to do this, we have to role-play. [1] Here, too, the processes of thinking and of decision-making are identical, and practice and skill in the one should engender skill and proficiency in the other.

We are assuming, too, in our research project that where adults are engaged in decision-making they will tend to become more proficient at it than if they were not so engaged and, by the same token, more intelligent; and, above all, that their childern will be. The reasons for this are as follows: where people make significant decisions they tend to value themselves and to be valued by others; they feel more alive and more active, which indeed they are, and therefore more joyous. (The opposite passivity, is accompanied by suffering and sadness.) Their children, too, will tend to identify with them to a greater extent, and to rehearse in play whatever pertains to their parents' role as decision-makers. The children will tend to value the decision-making process as they grow up, and to become proficient at it.

On the basis of these assumptions we should find that parents whose

1 George Herbert Meed, "Mind, Self and Society".

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occupations or activities involve a high degree of making significant decisions should have children who exhibit intelligence superior to that of children whose parents are not so engaged. Our project assumes that intelligence is in good measure an environmental function, and particularly a socio-economic and political one.

Of course, it may be argued that the more intelligent parents screen themselves out of the non-decision-making jobs, where job placement is to a considerable extent voluntary. In other words it may be urged that the less confident, less intelligent and lower self-imaged man will remain in a job situation offering less opportunity for decision-making, and not merely that the job climate changes the self-image. Any correlation found between intelligence and decision-making could then as easily be attributed to heredity as to differences in the economic, social, political and familial environment.

1. But if our assumptions are correct then it should prove that the children of workers in factories who participate in making decisions significant for the operation of those factories should have children who are more intelligent than the children of comparable workers who make no decisions in their plants. Traditionally, the employer (management) formulates decisions which are accepted and executed by the workers. But what happens when the workers participate in the decision effecting production ? How is the worker's image of himself effected ? Is there any appreciable difference in the intelligence of the children of such workers as ever against workers whose sole function is to accept and execute the decisions of management ? We should like to explore this question.

To do this we would like to study the relevant records of children of workers who, for a sufficient period of time, have participated in making decisions in their plants, and compare them with the records of the children of comparable workers who, for the same period, have merely received and executed decisions. Would such a study reveal differences in the intelligence of the two sets of children ? If so, could those differences then be explained in terms of the differences in the decision-making roles of the parents ?

Such an inquiry would (a) select plants which differ significantly in their decision-making processes, (b) select, if possible, those plants in which these differences have obtained for an adequate period of time, (c) define the term 'adequate' and the criteria for adequacy. (d) compare the traits of the workers which are presumably relevant to intelligence with an eye to their being comparable, (e) trace the school careers of the children of these sets of workers, (f) define the senses of the word 'intelligence' pertinent to our inquiry, (g) and, if possible, plants should be studied in which the same workers have operated under both systems of decision-making for adequate lengths of time and the histories of the children of these same workers compared, their histories when the wor-

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kers were operating under one type of decision-making process and when they were operating under the other. This would help us assess the effects of changes in the decision-making process.

2. If our assumptions are correct it should also prove that the children of economically, socially, politically or racially under-privileged parents who are active in alleviating their condition will, in the long run, be more intelligent than those of under privileged parents who are not thus active, since the former are involved in decision-making processes. To test the influence of the environmental factor, parents should be chosen as have, for an adequate period of time, not been active in combating their condition and who then have, for an adequate period of time, become genuinely involved. The histories of their children both before and during the period of their involvement should be studied with an eye to determining whether any positive changes in the intelligence of their children occurred. Other factors presumably pertinent to intelligence will have remained constant for the purpose of this study.

3. Children who are not allowed by their parents to make decision should be found to develop inferior intelligence. In general, wherever individuals or groups are deprived of the power to make decisions in significant areas, this should be found to adversely effect their intelligence and that of their children.

4. It would also be interesting to compare the intelligence of the children of farmers who live cooperatively and make decisions effecting their work with that of the children of farmers who work in comparable circumstances but do not make decisions. Where cooperatives differ in structure and motivation, they should be compared with one another. Since it may be very difficult to isolate the effect of decision-making upon intelligence here (the philosophy of farmers in cooperatives may be a significant factor, their education, etc.) these different cooperatives and farms should be studied as wholes and reasonable conclusions drawn.

5. In the light of our assumptions the children of executives should perform in a superior way at school, and

6. Superior students should choose extra-curricular activities whose processes are identical with the processes of reflection. For example, they will tend to participate in student councils, debating societies, drama groups, etc.

7. Children at school and in recreation who are encouraged to make decisions should, in the long run, develop superior intelligence.

8. A positive correlation should be found between decision-making and creativity. For example, a study of creative people (inventors, let us say) should disclose that their personalities lean more propouncedly toward non-conformity than toward conformity.

These are some of the consequences of our assumptions.

"This research project needs money and information for its prosecution. Anyone who can help in these particulars, please, write to : Dr. Arthur Lapan, 8866 Bay 16 th Street, Brooklyn 14, New York. U.S.A."

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OBITUARY NOTE

Prof. Albert E. Avey, Professor of Philosophy, Ohio State University, one of our great Contributors and admirers whose article 'The Chronology of Indian Philosophy' appeared in **Darshana** Vol. II, August 1962, Number 3 pp. 65-75 and another article 'How Exact is our knowledge of Early Greek Thought' will appear in Dr. S. Radhakrishnan Souvenir Volume, has passed away recently. He was a great Western Scholar who studied Indian Philosophy thoroughly. We are very sad on his death. We offer our heartfelt condolences to Mrs. Anna C. Avey (Mrs. A. E. Avey) and other members of the family.

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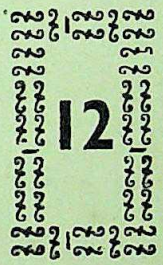
INTERNATIONAL QUARTERLY

OF

PHILOSOPHY, PSYCHOLOGY, PSYCHICAL RESEARCH, RELIGION, MYSTICISM & SOCIOLOGY

पुस्तकालय
गुरुकुल कांगड़ी

MORADABAD (India)



Volume III October 1963 Number 4

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DEDICATION

THIS ISSUE OF "DARSHANA INTERNATIONAL" IS HUMBLY AND CORDIALLY DEDICATED TO PROF. *DR. JOSEPH BANKS RHINE*, AN AMERICAN SCHOLAR OF INTERNATIONAL REPUTE WHO HAS CONTRIBUTED ENORMOUSLY TO THE KNOWLEDGE OF THE DEPTHS OF HUMAN PERSONALITY, HAS BECOME A PIONEER IN THE FIELD OF PARAPSYCHOLOGY AND HAS DONE ADMIRABLE WORK IN THE FIELD OF LEARNING BY ESTABLISHING FIRST PARA-PSYCHOLOGY LABORATORY IN THE DUKE UNIVERSITY AND WHO HAS DECIDED TO DEDICATE HIS WHOLE LIFE FOR PARAPSYCHOLOGY, BY APPLYING THE METHODS OF SCIENCE AND REASON BOTH WITH THE CO-OPERATION OF PHYSICAL AND SOCIAL SCIENTISTS. DR. J. B. RHINE AND HIS CO-WORKERS AT DUKE UNIVERSITY INCLUDING HIS ILLUSTRIOUS WIFE DR. LOUISE RHINE DESERVE OUR APPRECIATION.

J. P. ATREYA
Managing Editor
'Darshana International'

BIOGRAPHICAL SKETCH

Joseph Banks Rhine was born on September 29, 1895. He got his Education at the College of Wooster in Ohio He abondoned his course and the college and Joined Marine Corps and served for the duration of World War I.After the World War I, he married Louis Ella Weckesser a former classmate at the college of Wooster.Then both Mr. & Mrs.Rhine joined University of Chicago the Department of Botany and took up Ph.D. Degrees from there.

Their interest had been aroused at Chicaga in the early 20's in the field of psychical research. In 1926 they went to Harvard to study under Mc Dougall. (But he was on Leave) They worked with Dr. Walter Franklin Prince the then Research officer of Boston Society for Psychical Research, and likewise studied under Professeor Morton Prince of Harvard the distinguished psychiatrist.

By the fall of 1927 they went to Duke University to Study under Professor McDougall for psychical research and post-mortem survival. Here they under took a research program to bring the survival problem into its proper focus. Opposed to the spirit interpretation was the view that the medium herself might very well possess enough telepathic and related abilities to draw from living sources the information that purported to come from deceased personalities.

The next ten years were heavily concentrated, then, on the questions of telepathy and clairvoyance, of precognition and psychokinesis.

By 1934 the first book report was published under the title *Extra-Sensory Perception*. In 1937 researches were published in a book *'New Frontiers of the Mind*. In the same year *Journal of Parapsychology* was founded and Professor McDougall also joined in this undertaking. Author of several well-known books on Parapsychology.

In 1935 he established a laboratory called the Parapsychology Laboratory. Since 1950 he is working as director of this Laboratory, with a number of staff members to give full time attention to parapsychology.On August 1,1962 he established the Foundation for Research on the nature of man, an organzation intended to be a world centre for the advancement of scholarly research on the nature of human personality.

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Editorial

HUMAN VARIABLES IN THE DESIGN OF NEW EQUIPMENT

TECHNICAL developments have today reached such a degree that a limitation in the yield of the man-machine system is imposed rather by the psycho-physiological possibilities of man than by the possibilities of the machine.

In order to permit future progress, it is necessary to co-ordinate the data arising out of different disciplines: physics, electronics, the physiology of the nervous system, experimental psychology.

Applications of these disciplines to practical problems have always been made. The problem, however, arises today in a completely new way: that is to say in terms of the **design of machines and instruments.**

The design of combat equipment should be closely linked to the bio-psychological characteristics of the operator. Ideally, equipment, (for instance aircraft) should be designed with the concept of **man as the centre of the system and the instruments as extensions of the nervous system of the operator.**

As long as operators are not given equipment designed along these lines, it will not be correct to attribute such an important part to **human failing** in, for example, aircraft accidents. If we provide man with badly designed equipment and if; in the encounter between man and machines, catastrophes occur, we must not blame the operator but the designer.

It has often been experienced—sometimes in a tragic way—that "machines do not fight alone". Radios do not hear, radars do not see, guns do not aim by themselves, cars do not drive themselves. Every effort should therefore be made **to improve operative conditions** in order to increase the efficacy and the safety of the system in question.

Certain general principles can already be outlined:

(a) designers should have a more thorough knowledge of human sensory and perceptive organs if sactisfactory information is to be supplied from signals and lights in the operation of equipment;

(b) the designer must not place unreasonable demands upon the operator as regards the physical responses involved in reacting or operating controls or levers, or in clearly differentiating between them;

(c) one should not overlook the possibility of **temporary lapses** due to fatigue, stress etc.

The **major areas of equipment design** in which biologists and engineers can collaborate most effectively are:

(a) layout of the "working space" for ease and efficiency of opera-

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tion (anthropometric studies are necessary and have already been carried out in certain countries in this respect);

(b) design and arrangement of visual displays in such a way that the information set out is not ambiguous and this not only under normal conditions but, and above all, in cases of emergency;

(c) protecting the operator in the event of catastrophe.

A certain number of **compromises** is nevertheless inevitable when new machines or instruments are constructed. In fact, it is not always possible to satisfy, simultaneously, all the general principles of correct design. Frequently, if we wish to satisfy the exigencies imposed by one principle, we are obliged to violate the exigencies imposed by another.

If we wise to achieve this compromise in the most effective way, we must in turn give priority to one at a time. For example:

(a) if **a long term operation** is involved, we must give the maximum importance to the **posture** (seating position) of the operator;

(b) if, on the contrary, the **speed** and **precision** of the manoeuvre to be accomplished are the most important factors, priority must be given to the **positioning of visual displays and of the controls;**

(c) when the operator has to cope with a **complicated group** of visual displays and controls, priority must be given to their **functional grouping** and their **codification** (standardisation, differentiation one from another).

To give another example: it is evidently desirable to have dials of optimum dimensions but space requirements of the necessity to simplify may make it desirable to construct them in a less than ideal way. Again, in this case, it will be necessary to select from amongst all the possible models **the least unsatisfactory one.**

We must carry on with experimental research up to the point where the recommendations we have to make can be accompanied by certain quantitative specifications. To insist that the controls must be "within reach" of the pilot is not sufficient; we must be able to indicate certain details, in such a way that the majority of pilots should be able to manoeuvre them correctly.

The most important criterion, in my opinion, for all that has a bearing on the application of our knowledge to the construction of machines, is **the efficacy of performance** on the part of the operator.

Many factors which determine, as a whole, this efficacy cannot be isolated one from the other for separate study. It is, however, always possible to carry out experiments by introducing **variants** (inspired by the study of human capabilities) and to establish in an objective way the operator's yield under the various experimental situations.

The best opportunities for applying our knowledge in the field of man-machine systems are to be found when the equipment is still at the

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design stage, namely:

(a) when one is still at the **design on paper** stage, a certain number of questions must be given preliminary consideration: the purpose of the equipment: type and function of each panel and each control; distance of the controls and panels from one another and distance of the operator; functional grouping etc.

(b) once the first development on paper has been made, the next step will be to construct an **experimental model**. At this stage, it will be possible to solve other equally important questions. If it is a question, for example, of a design for an aircraft cockpit, we have the possibility of using advanced models such as the **Universal Test Seat**, developed at the University of Michigan, or the **Beinfort Fixed Preflight Trainer** (the first model provides a large number of variations of the position of the operator, whereas the second offers us a fairly realistic model of cockpits in which position of the different component parts can be varied for experimental purposes.

The final testing of the equipment will be made:

(c) on a **prototype** of the equipment itself. These models must be sufficiently flexible to permit alternate designs (as realistic as possible) to be subjected to testing.

Finally, it would be advisable to obtain the opinions of experienced operators, by means of **technical questionnaires**, and on their preferences in the case of alternative solutions.

The problem of **design** and that of **utilisation** should, in my opinion be linked. When a group of designers has constructed certain equipment it has, by this very reason, acquired the capability to supervise most efficiently the **training programmes**.

Finally, experience of war has demonstrated **the importance of the acceptance** of new equipment on the part of personnel who have to use it. A new piece of equipment may be perfect from the point of view of construction but will be of little value if those who have to use it "reject" it.

The resons for this "rejection" can be varied: not feeling at ease with the new machines' prejudices deriving from previous training with other types of instruments, "rumours" of imaginary dangers etc... It is for this reason advisable to introduce **acceptance tests** (on the part of personnel) in the case of new equipment.

A final word on the **economic aspects** of the problem we are considering at our meeting. If certain modifications, which are theoretically possible or desirable, seem too expensive against the results obtained, one must not lose sight of the gains which are not always directly understood. For instance, how can one state, in figures, the price of fatigue, that of accidents avoided of that of absenteeism owing to illness? Putting aside all other considerations, economies achieved in the fields of health and of the avoidance of accidents are in themselves paying.

In any case, before embarking on the study of modifications of equipment, it is well to ask the opinion of an expert on the foreseeable advantages; **the difficulty being not to state the price but to evaluate the gain.**

G. MIGLIORINO

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AN APPEAL

Research Institute of Philosophy, Psychology & Psychical Research has been planned at a very beautiful and quiet place in the laps of Himalayas, namely at Kuthalgate on Dehradun Mussoorie Road. This place is 9·5 miles from Dehradun, 2·5 miles from Rajpur and 12·5 miles from Mussoorie. Its height is 3,333 ft. above sea level and the climate is congenial throughout the year. A large number of Professors Indian & Western, both retired and working have agreed to co-operate in the scheme.

The main purpose behind the Institute is to bring the hidden, unexplored and extraordinary or supernormal features and aspects of human life into the lime light of the present day with the help of all the ancient and modern methods of researches available to the mankind to day. So that our future civilization and culture may be established on a right outlook on life and universe. It is expected that a greater understanding of man and the universe will bring about a better Social organisation and a superior administration in the world. The organisers of the Institute appeal to man in power and position, to the rich who can donate land and money and to the scholars and scientists who can co-operate in the research work and to the Governments, Commissions and Foundations who can patronise.

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PSYCHOLOGY AND METAPHYSICS OF THE EXPERIENCE OF COMMUNION WITH GOD

JOSE A. FRÁNQUIZ

ACCORDING to Webster, "Mysticism is the doctrine of belief that direct knowledge of God or spiritual truth or ultimate reality, is attainable through immediate intuition, insight or illumination, and in a way, differing from ordinary sense perception or ratiocination.....Hence (it is another name for) vague speculation, vagary, belief without foundation." As rare synonyms of "mystical", Webster mentions the following: "Remote from ordinary human knowledge or comprehension,unintelligible, cryptic, enigmatic, obscure, ocult,cabalistic."[1] Logical positivism and most of the forms of naturalism would have called mysticism simply a pseudo-problem or an instance of nonsense. But our standard dictionary merely suggests the expressions "vague speculation," "vagary", and "belief without foundation."

It is not the purpose of the present paper to condemn or applaud the foregoing concepts of mysticism. Indeed our study will not be an investigation of mysticism *per se*. Nor will it be an inquiry into prayer. It will be simply a general consideration of some of the factors and circumstances attending those experiences which man has consistently called instances of communion with God. Our purpose, then, is to inquire into the "vagueness" of man's attempt to transcend himself. But such an inquiry would of necessity have to touch on the fields of mysticism, faith, worship and prayer. The general character of our topic, therefore, will permit us to move freely among these concepts, and dispense with an unnecessary exhaustive list of the recognized literature on the field.

At the outset, the very idea of communion with God seems to beg the question, and from a strictly rationalistic point of view probably it does; but were we to validate with nicest accuracy each one of our concepts, our discussion would not progress very far. Within the scope of our short paper we cannot undertake to prove the existence of God.God must be assumed. Any other approach would take us far off into the entanglements of theological dialectics. The following comment from the great English Idealist, Norman Kemp Smith, states our attitude succinctly: "It is no longer regarded as possible to demonstrate by dialectical argument the existence of God. It is recognized that the so-called proofs

1. Merriam-Webster, 'New International Dictionary' (2nd Edition. Unabridged, Vol. III. Spring-field, Mass.: G. & C, Merriam Company, Publishers, 1959), p. 1621.

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are at best merely outline indications of the various directions in which demonstrations are to be sought: It is in the highly specific facts of religious experience in the past and in the present, in their coordination with the other aspects of life, and through study of them in all the detail of their historical accompaniments, that the evidence...if adequate theoretical evidence there be...is alone to be found."[2] The British philosopher follows pretty closely the thought of Borden Parker Bowne who many years before,referring to the arguments for the existence of God,declared that "carefully considered (they) turn out to fall short of demonstration ...Matters of fact do not admit of demonstration in any case. Demonstration attaches only to the formal science like mathematics which deals with the relation of ideas.Whenever we come to consider concrete reality there is always an element of assumption in any so-called demonstration."[3] Our dynamic conception of reason or "coherence at work", however, liberates us from strict rationalism, and therefore, at least for the time being, we may safely overlook the apparent *petitio principii* implied in the title of this paper.

John Oman distinguishes between four types of knowing, namely: awareness, apprehension, comprehension and explanation.The difference and relationship between these types he illustrates as follows: "While walking in a dreamy mood along a country road, we may have a vivid sense of all that is about us, without attending to anything in particular. Our knowing is then a general field of **awareness**, including scent and scent and sound as well as sight. The more we are entirely in this state of awareness, the more all our senses are active, so that we may even have vague realization of the taste of the apples in the orchards and the coolness of the waters in the streams. Something in this field arouses particular attention, say an object moving towards us on the road. If it specially interests us, as, for example, by being unfamiliar, we concentrate attention on it to see exactly what it is, seeking to **apprehend** it as one object by what appears to be its more relevant and important details. Let us say that we apprehend it to be a man riding a bicycle. Then, supposing we have none of the information we afterwards learn to include under the name bicycle, but have everything to learn about it, we try, as it approaches, to **comprehend** it. This we do by considering the machine in relation to the man as a means of locomotion.....Finally,as it passes, we are faced by the problem that it seems to have no support from its breadth, yet keeps upright while travelling along a line. This singularity we try to **explain**: and we do it with such general principles as the scientific knowledge we happen to possess provides."[4]

2. Norman Kemp Smith, 'The Present. Situation in Philosophy,' 'Philosophical Review, XXIX (January, 1920), p. 24:
3. Cp. Borden Parker Bowne,: 'Kant and Spencer' (Boston, Mass. Houghton Mifflin Co., 1912), p. 207.
4. John Oman, 'The Natural and the Supernatural' New York : The Macmillan Company, 1931), pp. 120-21.

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Oman would be the first to grant the interrelatedness of his four types of knowing. Indeed they interecoalesce and support each other,and belonging together their division should not be carried to far. Yet, they are sufficiently unique to be distinguished.

Applying Oman's criteria we may say that communion with God is a manner of **explanation.** But it is not scientific explanation. Much less is it the type of scientific explanation which consists in explaining away. It is a type of explanation to one's self which consists of the awareness of certainty. It is also a manner of **comprehending,** but its comprehension is not a matter of adding information and compiling data. It is not a procedure, but an attitude. Communion with God is also **apprehension,** but not the apprehension of a thing or an object. It is rather an apprehension of meaning, novelty and joy. It is an apprehension of self-discovery and self-experience. Communion with God is, finally, intensified **awareness,** but not awareness of mere concreteness. It is the awareness of ultimacy and the experience of an objective presence. In terms of our study, explanation clarifies comprehension; comprehension strengthens apprehension; and apprehension anticipates and leads to ultimate awareness. **Awareness,** on the other hand, animates apprehension;**apprehension** illuminates comprehension; and **comprehension** unfolds in **explaining.** In this sense, awareness of the ultimate is dialectical.It is a gradual growth that ascends in search of ever higher syntheses and climbs to the loftiest and most inclusive universal; but always returns to the point of departure, to specificity and particularity. If mystical experience evidences itself by any distinctive quality, it is by the quality of life to which the experience leads. The mystic's euphoric feeling and awareness of ultimacy is never a mountain-top experience only: Indeed the experience itself, whether it is a feeling or a vision or an ecstasy or a mood, does not last for more than two hours.[5] What is peculiar about the experience is that it enriches life, charging it with a sense of vision and mission.

Mysticism in itself not being the central object of our study, it will be unnecessary for us to digress into the psychology and physiology of mystical experience. James H.Leuba's famous observation that mystical ecstasy can be induced by the use of certain drugs,[6] would be, therefore, irrelevant to our problem. Leuba certainly knows what he is talking about, but inasmuch as by religion he seems to mean simply what we call superficial and crude evangelism,we can dispense with his psychology and philosophically realize that the origin or even the history of an experience has nothing to do with its logical validity. This would also apply to cases of self-hypnosis, glossolalia, hallucinations and the other religious phenomena with hysteric foundation. The type of religious experience a person has, depends primarily upon what the person is. The

5. William James. 'The Varieties of Religious Experience (New York : Longmans, Green and Co., 1902). p. 38.
6. James H. Leuba, 'The Psychology of Religious Mysticism' (New York:Harcourt, Brace & Co., 1925), Chap. ii. Also cp. James, 'op. cit.,' pp. 386-387, 390-392.

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psychological make-up of the individual determines to a great extent not only the manner in which he experiences the religious, but also the manner in which he experiences anything in life. No other psychologist has established this fact so fruitfully and constructively as Gordon W. Allport in his personalistic psychology,[7] although long before Allport, William James had suggested the same insight by his well known classification of individuals as **tender-minded** and **tough-minded.** The tough-minded or healthy-minded soul experiences religion without a conversion crisis, while the tender-minded or sick soul needs a radical crisis to achieve integration and peace of mind.[8] Even before William James, George A. Coe wrote about the influence of individual temperament and of social factors on religious experience.

This situation sheds light upon what, in the judgment of Bowne, constitutes the three types of Christian discipleship. Obedience, we are told, is the supreme test of religion. The Lord requires of us simply the filial spirit issuing in lives of obedience to his commandments (I John 2:3-4), This is the ethical type of discipleship. For it religion is righteousness. It is the moral law conceived as the will of God. Communion with the eternal is not a matter of "fervors, deep meditations or flaming raptures, but of loyalty to righteousness." "Communion with God is moral goodness, and this is the religion of most thoughtful young people of wholesome moral training and habits. Indeed this is also the religion of the Synoptic Gospels and of St. James epistle...."[9]

There are other persons, however, Bowne observes, to whom this phase of Christian doctrine is far from satisfactory. For these, the law is more than a rule to be fulfilled. It is a spirit which can never be exhausted in man's experience of righteousness. These individuals have to be taken out of themselves and taught that they are saved by grace through faith. But such persons are not immoral. Frequently they are even more moral than any other type; simply they can never rest in the satisfying contemplation of their behavior.

There is, however, a deeper religious need which neither of the preceding types of discipleship seems to satisfy. Man experiences a yearning for oneness and fellowship with the eternal. And nothing whatsoever can take its place. But there's the rub ! Bowne alludes to this type of experience in a casual fashion, almost disparagingly. It is true that he recognizes the foregoing three types of discipleship, and observes that the three are present in the New Testament and in the history of the church. Indeed we are told that they are implicit in the religious nature itself,and

7. Gordon W. Allport, 'Personality : A Psychological Interpretation' (New York : Henry Holt & Co., 1937); 'The Individual and His Religion' (New York : The Macmillan Co., 1950); The Roots of Religion' (New York : National Council of the Protestant Episcopal Church, 1944).
8. James, 'op. cit.,' pp. 78-165.
9. Borden Parker Bowen, 'The Essence of Religion' (Boston & New York : Houghton mifflin Co., 1910). pp. 229-231.
10, IBID.. pp. 231-232.

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that they would find expression in every Christian, if men were perfect. "...But all these types have to be tested by righteousness. Otherwise salvation by faith may easily pass into immorality, and fervor may issue in practical indifference to the work of the world.The only way in which we can escape these dangers is by beginning with the moral type and keeping the commandments of God. There is no other requirement and no other may be imposed."[10]

Fundamentally there is no major disagreement between our position and that of Borden Parker Bowne. Morality and religion cannot be divorced. But there is always the danger of anthropocentrism. Humanism and most of the other forms of naturalism are as much concerned for the moral improvement of the human race as Bowne or any other personalist ever was. Instead of religious experience being grounded on man's moral nature and needs, we find the roots of morality historically and metaphysically grounded in the religious nature of man. A morality imported externally does not necessarily flower out into religion from within; but when the inner life is genuinely religious it unfolds in moral behavior. Indeed the injunction of both the Old and the New Testaments is not so much to be good as to be holy: These few words might easily spell the difference between religion and secularism, and also between a spiritualistic metaphysics and a naturalistic outlook.

Rather than undermine with Bowne, therefore, the importance of his third type of discipleship, from our point of view we stress its primacy. If God is the ultimately real, thirst for fellowship with Him here and now in the manner of the vine and the branches is itself the mature religious sentiment, regardless of how we phrase the experience of it. Spinoza calls it intellectual love of God; Schleiermacher, the sense of absolute dependence on God; Rudolf Otto, *mysterium tremendum luminosum et fascinosum* and even Jonn Dewey speaks of "the personal experience of totality...sublime joy of emancipation in whose presence one is immortal within the life of the universal."[11] The manner in which the experience of the religious sentiment is phrased is inconsequential. Irrelevant may also be the hysterical exaggerations into which the sentiment may finally degenerate. The ecstasies of St. Teresa, the visions of Ignace of Loyola, the hallucinations of St. John of the Cross, the frightful experience of Boehme, the burning bush of Moses,the call of Isaiah,Paul's event on the road to Damascus, and so many others, would naturally depend upon the psychological constitution of the persons experiencing the mystical rapture and also upon the conditions, traditions, and religious expectations of society at the time those experiences took place. These external forms and manifestations are matters of abnormal psychology and psychiatry. What is of metaphysical relevance is that man

10. Ibid., pp. 231-232.
11. John Dewey, 'Human Nature and Conduct.' An Introduction to Social Psychology. (New York : Henry Holt and Company, 1922), pp. 330-332.

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longs for totality, that in some way he experiences the satisfaction of this need, and once having his need satisfied, his experience unfolds in constructive social action. The religious sentiment, therefore, at least in the foregoing sense. is akin to the type of knowing which John Oman calls Awareness.[12]

Most of our discussion this far has centered, however, upon the problematics of the religious sentiment and its conditions: But communion with God is neither a sentiment nor a condition. It is an act: indeed, the most important act of man. It is life. If there is no God, communion is a misnomer. But if there is God, there is no substitute for the value of communion with Him. Communion, however, involves two parties. It is a dialogue, a meeting, an encounter.[13] It is an "I-Thou" relationship, to use Buber's phrase, a subject-object situation. Only persons commune and communicate. Communion with God presupposes, therefore, both the personality of man and the personality of God. Man does not commune with process or evolution or atomic energy. He communes with God. But if God does not commune with man. there is no communion either. Communion, therefore, rests upon God's revelation and man's transcendence. Failure to emphasize the revelation of God will make of religious experience a case of wishful thinking, a mechanism of projection. But failure to emphasize man's transcendence will cancel the human spirit, for, as Francisco Romero has admirably shown,[14] transcendence is the essence of spirituality.

The difficulties involved in the problematics of revelation are too numerous and complex; but revelation as a fact must be faced, lest by shunning it we render communion with God an inarticulate and meaningless expression. For the purpose of our study let us limit our inquiry to two related questions: in revelation, what is it that God reveals, and how does revelation take place ? An answer to these questions will shed light upon the objective aspect of the subject-object situation which constitutes the I-Thou event of communion with God.Concerning revelation, the believer thinks at once of sacred writings, each religion considering its own sacred books more meaningful and inspired than the literature of the other religions. This is what Professor Brightman calls the dogmatic conception of revelation, which makes it consist of "the communication of supernatural and infallible truths or dogmas...thought of as propositions which the natural reason could never arrive at by reflection on ordinary experience."[15] But even within the various religious

12. Supra.

13. Cp: Martin Buber, 'I and Thou' (New York : Charles Scribner's Sons, 1937); 'Eclipse of God' (New York : Harper and Brothers, Publishers, 1952).

14. Francisco Romero, 'Filosofia de la Persona' (Buenos Aires : Talleres Graficos Radio Popular, 1938); Teoria del Hombre' (Buenos Aires : Editorial Losada, 1952). Also, Jose A. Franquiz,'Personalistic Structuralism of Francisco Romero' 'Luminar,' II (Spring, 1940), pp. 252-275; and Jose A. Franquiz, 'Personalism in Latin America,' 'The Philosophical Forum', XII (1954), pp. 77-78.

15. Edgar S. Brightman. 'Philosophy of Religion' (New York : Prentice Hall Inc., 1940), p. 175.

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bodies themselves there are wide differences of opinion as to the manner in which the scriptures are to be understood and accepted. If our inquiry is not to end in a chaotic religious relativism, we must look at all sacred writings from the point of view of the spiritual function they perform. As such, all sacred writings, the *Bible, Koran, Tao Teh King, The Book of the Dead,* and many others, have in common man's need and longing for the Eternal and the purpose of bringing him nearer to God. This is the revelation. Professor Brightman's insight helps us also concerning the second question as to the manner in which revelation takes place. He suggests what he calls the teleological or dynamic theory of revelation According to this view, "the essence of revelation is not the communication of infallible truths; instead of it is the guidance of human life to higher levels by divine power.....The divine purpose so acts in human history that men are given impulses which lead them to move toward God...This dynamic view makes revelation an experience of the power and active purpose of God rather than an experience of God's knowledge.....Experience on this view, includes many factors which are revelatory in the sense of being purposed by God in order to lead men to higher values; yet all these factors must be interpreted by reason, and the interpretation is human thinking, not divine dogma."[16]

In our discussion of the religious sentiment[17] we anticipated most of what we could call the subjective side of the subject-object situation which constitutes the I-Thou event of communion between man and the eternal; but our stress lay on the sentiment and not on the individual. The sentiment by itself, however, apart from the tensional life of the individual is an abstraction. The subject must be treated in terms of concrete personality, for without personality at both ends there is no communion.

Commenting approvingly on Schleiermacher's concept of absolute dependence as "the most exact and profound explanation" of religious experience, Miguel de Unamuno concludes that the concept of the divine emerged in man by way of psychological projection. The concept originated in feeling.[18] This statement antedates, of course, the time of Freud, and its meaning must not be confused, with the Freudian Fatherhood complex," "for Unamuno is not doing away with God. He is primarily concerned with the manner in which men come to hunger for God and experience His reality. But in his study, Unamuno prepares the way for a great deal of modern psychology of religion.

In a recent paper Paul E. Johnson observes that "our effort to communicate (represents) a precarious hopeful attempt to overcome our lonely isolation by completing even for a moment a circuit of wholeness

16. Ibid., p. 176.
17. Supra.
18. Miguel de Unamuna, 'From God to God,' 'Sentimiento Tragico de la Vida', (Madrid : Renacimiento, S, A., 1914), pp. 156-184.

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..."[19]It is true that Johnson is referring here not to cosmic totality,but to the social wholeness" in which we join our hidden differences in a common experience of understanding."But is it not true than man is also a lonesome individual in the cosmos?He may not feel his universal loneliness all the time,but in the presence of death and suffering,in his realization of helplessness and impotence,he ponders and wonders.Might this not be what Schopenhauer meant when he claimed that had it not been for death and suffering there would be no philosophy when plato affirmed that philosophy begins in wonder, probably he also was referring to man's sense of ultimate despair. Against the backgrouud of the cosmos, man is a lonely individual,and religion is the consolation that wells up from the core of his being when his heart bursts in his aloneness.We can sympathetically understand Unamuno, therefore, when he insists that if there is not a God we must make one. Two profound utterances of Whitehead illumine our thought in this connection:"Religion is what man does with his solitariness,"and also,"Religion is the passage from God the void to God the enemy and from Him to God the companion." Somewhat differently but with a tint of the paradoxical,Hocking expresses this same existential imperative of the divine when he asserts that because the world is, **God is**: and because the world is not. **God is.**[20] There is in man, then, a yearning for what John Dewey called "personal freedom and peace of the individual within the harmony of infinite totality."[21]

It is this yearning for totality, or "basic need for relatedness" as Johnson calls it,that motivates the effort to communicate and commune. With the exception of the extreme pluralistic psychologists like James, Dunlap, Angyal. McDougall, and Murray,who deny uniqueness and universality to this or any other form of religious sentiment, most modern psychologists and philosophers prefer to establish specific norms for the religious emotion. Bowne bases it on obedience to the commandments of God; Barth and his followers, on direct revelation"from above;" Wobbermin grounds it on the experience of longing and the need for security; Rudolph Otto, on the **numinous**, or feeling of creaturehood; Romero, on transcendence; Heidegger and his followers, on concern and dread; Knudson, Troeltsch and other apriorists, on man's native capacity for religious experience; and Gordon W. Allport, on a type of functional autonomy of motives which regardless of the origin becomes like all master sentiments, well differentiated, dynamic, consistently directive, comprehensive and harmonious.[22]

Gathering now together to fruits of our investigation we find by

19. Paul E, Johnson, 'How Do We Communicate ?' (Unpublished paper read at Bryn Mawr College, Dec. 27, 1951); cf. also Paul E. Johnson, 'Psychology of Religion' (Nashville, Tenn.: Abingdon Press. 1945). Chaps. ii, v. vi. vii.
20. William Ernest Hocking, 'The Meaning of God in Human Experience' (New Haven : Yale University Press, 1912). p. 312.
21. John Dewey, 'loc. cit'
22. Gordon W. Allport, 'The Individual and His Religion.' pp. 57-74; 'Personality A Psychological Interpretation', pp. 213-231; 'The Roots of Religion,'pp. 3-30.

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way of summary that communion with God belongs in the field of mystical experience, and mysticism, like all religious experience, contains a peripheral fringe of abnormality as well as a healthy, vigorous center of genuine penetrating insight. Whether on the fringe or in the center, the quality of religious experience depends upon the maturity and psychological make-up of the individual. The test of the genuineness of religious experience, regardless how mystical, is the character of social action to which it leads. Not only different individuals may have different types of religious awareness, but also an individual himself may have different types of religious experience.

In our paper we have treated also the uniqueness of the religious sentiments as a basis of the religious life, and finally we proceeded to a separate consideration of the object and the subject of the experience in communion. The object, God, provided us with a **beyond**. The subject, man, provided us with a **within**. Borrowing the joyful expression of Rufus Jones and applying it to our investigation, we find that communion with God is the experience of **a beyond that is within**, but not to the extent of either an epistemic or an ontological sameness.[23] It is a union, not a unity; a fellowship, not an identity. It is a meeting which begins with dialogue and culminates in partnership; a trembling soul fearfully trying to say, "Thou madest me for thyself, and my heart is restless until it finds repose in Thee;" and Love eternal whispering quietly. "Thou wouldst not seek me if thou hadst not already found me."

23. For a lucid discussion of this point, cp. Albert C. Knudson, 'The Validity of Religious Experience' (New York : The Abingdon Press, 1937), Chap. ii; also, Edgar S. Brightman, 'op. cit.,' pp. 168-171.

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AESTHETIC VALUES AND THE SOCIAL ORDER

RALPH J. HALLMAN

MOST of the problems in aesthetics remain open-ended and controversial. Little agreement prevails regarding even the nature of aesthetic values. Hence, a short discussion which outlines the responsibilities higher education in "helping students develop a sense of aesthetic values and appreciations and relate them to life as a whole" will need to be tentative and speculative. Instead of offering a solution to any specific issue in this field, I propose that we consider more carefully the phrase "life as a whole" as it becomes involved in aesthetics. Let us assume that culture is undergoing transformation in some very fundamental ways and that society seems to be vulnerable to some degree of re-organization. I am suggesting in this paper that higher education must assume some responsibility for an aesthetic re-ordering of cultural forms. My remarks will have a psychoanalytic orientation.

Let me at the outset propose one responsibility which higher education may assume in this connection : it is that the sciences, particularly such behavioral sciences as psychology and anthropology, accept the general problem of value as a legitimate area of research and even experimental investigation. Traditionally, aesthetic values have been discussed in terms of paradox, of poetry and symbolism. Because these values have been notoriously elusive, writers in the field have had to speak of purposiveness without purpose, lawfulness without law, and subjectivity which seems nevertheless objective; to describe beauty as truth and truth as beauty; to explain creativity as the mysterious output of some divine frenzy. I do not wish to argue here that such statements are not true; I only make the suggestion that science can bring rigor and clarity to the problem of value.

My comments then will describe a general theory of culture and will be organized around the following four propositions : (1) that civilized man burdens himself with an unconscious fear of history and consistently seeks to abolish history and culture; (2) that this discomfiture and restlessness as an historical creature equates with neuroticism, and that the neurosis results from the repressions which cultural forms impose upon the individual's demand for immediate gratification of impulses; (3) that aesthetic values owe their special quality to their origin in the primary energy of desire, as desire is transformed into symbols acceptable to the culture; and (4) that the aesthetic experience, grounded in the pleasure principle, offers the possibility of orderliness and stability which culture requires but does so without repression and hence without neurosis.

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Art permits the free expression without the accompanying threat of the pleasure principle to an established order.

The first of these theories has been developed by Jung and Eliade; the second and third are recognized as classical Freudianism; the fourth proposition appears in the writings of Fromm and Marcuse. The convergence of these ideas to form the thesis of this paper is my own responsiblity.

Our first proposition refers to the condition of man and asserts that man refuses to accept himself as a creature of history, that his Faustian dissatisfaction forces him to search for the eternal as against the temporal, the sacred against the profane. He has expressed his refusal to face the terror and anxiety of historicity through at least three escape mechanisms : (1) his anticipation of an occasion when historical time will come to an end and human culture abolished, as in the Judaeo-Christian theory of the Second Coming or in the Marxian hope for a classless society; (2) his return to those primordial conditions which were before time was; and (3) the submersion of his historical individuality within a paradigmatic, ritual form of behaviour. These revolts against concrete, historical time occur under a variety of symbols : the ceaseless repetition of archetypal calendar events; the imitation of acts of God; the concept of world centers; celestial models of cities and temples; marriage, building and agricultural rites; ritual combat, bull fights, jousts, tournaments; the return to the New Year, turning over a new leaf; periodic purgation, fasting, and confession; scapegoat festivals, consecration of new harvests, Mardi Gras; initiation rites, and curative rituals. These examples of behavior take away from suffering its finality, and from guilt, its permanent attachment to individuality. If culture can come to an end, man can suffer and tolerate his condition.

Our second proposition borrows from psychoanalytic theory and states that man's ceaseless unrest reveals a more fundamental condition of neurosis, and that indeed neurosis itself is the basis of culture. Freud's CIVILIZATION AND ITS DISCONTENTS develops this theme at some length, and it occurs in Christian philosophy as man's originally depraved state which, as Niebuhr for example believes, accounts both for the force which propels history forward and also for the freedom which man experiences in his sinful behavior and his artistic creative activities.

Civilization, and the history of civilization, grows and establishes itself upon neurosis or depravity. Culture comes into being as instinctual urges for gratification are repressed, postponed, sublimated and subjected to the reality principle. The suffering occasioned by repression builds itself into neurosis, for the unconscious level of mind will not permit the wishes to go unfulfilled and will therefore insist upon substitute gratifications. These substitute forms of behaviour constitute culture; they represent the secondary rewards which emerge when impulses for gratification become deflected from their immediate goal of sexuality. Such

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impulses require deflection, for their gratification would destroy civilization, but to inhibit them to the extent that gratification gives way to delay, pleasure to toil, and receptiveness to production, then the individuals who create do so as neurotics.

As with the doctrine of original sin in religious theory, neurosis propels history forward. The pleasure principle still reigns supreme and does not abate under inhibition. The state of affairs called the future is invented as the possibility for fulfilling wishes, and historical time itself comes into being as we launch out into the future in search of fulfillment. But what we are searching for is precisely the past with all of its infantilisms and guilts which our neurosis has generated. Hope for future satisfaction signifies fixations to the past; guilts place us in bondage to the past; and thus history moves forward into the future on the basis of servitude to the past. Of all creatures, only man has a history; only man can be neurotic, for only man experiences desire which remain unsatisfied even through cultural expressions. These repressed, unsatisfied wishes produce and sustain history.

Our third proposition follows from the second, which, as we saw, asserts the connection between Faustian restlessness and neuroticism; the third one points to the connection between neuroticism and aesthetics. Civilized man remains uuconscious of his real desires, for his conscious transactions with reality have inhibited their expression and culture can never satisfy them. These repressed desires still furnish the energy of personality; under the label of the pleasure principle they drive the human organism; they are the desires of complete freedom, of sheer pleasure, of spontaneity, of full indulgence, of play. They provide visions of utopias, finalities, omnipotencies.

According to Freud (and other psychoanalysts), they also provide both the dynamics and the content of day dreams, of phantasies, and for our purposes of art. They account for the free, spontaneous play of children and make it difficult for the child to distinguish between the make-believe world of his unconscious wishes and the real world which consciousness would divide off from him. The creative artist does the same thing as a child at play : he creates a world of fantasy, and then he takes it very seriously.

Fantasy, and art, are then the last strongholds of the pleasure principle against the dominating forces of culture. Because they express impulses which are not permitted by society, because they may be humiliating, archaic, and elemental they are obstinately opposed by the reality principle as disruptive and hostile. But being themselves energized, they create tensions which demand release, even though their gratification, as we have noted, makes civilization impossible. Hence, they must seek out and imbed themselves in some symbol powerful enough to contain them but stable enough to be accepted by a social order.

The creator of the symbol experiences pleasure, for his psychic ten-

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sion has been discharged. The members of society feel pleasure too because they have been put in the position of enjoying their own unconscious wishes apart from any sense of shame or reproach and without endangering the fixed relationships which bind the society together. To be sure, this position is one of disguise, of stylization, of artistic elaboration; but these techniques employed by the artist only enhance the original expression of pleasure by providing for formal, aesthetic levels of enjoyment. These latter pleasures enhance the quality of enjoyment because they not only provide for the gratification of unconscious desires but because, being transformed by a design recognized by the culture as worthy, they come to express the ideals of that culture. In short, the artist has performed the mysterious, paradoxical act : he has transformed unconscious, individual wishes into universally accepted and consciously communicative symbols. Psychologically, energy previously attached to desire has been captured by consciousness and channeled into artistic techniques. For the purposes of this paper, this means that both freedom and culture are possible, that purposiveness without purpose may be meaningful, and lawfulness without law.

This brings us to our fourth proposition : it is possible at least to **imagine** a society which is built and sustained by aesthetic values, society which is non-repressive and therefore non-neurotic. If the vision is remote, the reality of the alternative is close at hand, namely the condition of man in which one of every ten members of society will require psychiatric help for his neurosis. This is the society in which the work which builds civilization involves the repressive utilization of man's creative energies, the society in which economic production sublimates these energies and becomes the condition under which culture can exist in the first place. The problem remains: how to retain civilization and freedom as well, how to experience pleasure and still engage in hard work.

Our thesis is that through artistic activity man can have both autonomy and culture. pleasure and toil; for it pursues aims which do not repress and therefore which do not alienate. Just as in poetry, where the free play of desire dominates the conceptual tendencies of language, so in art man's impulse for free expression takes precedence over the demands of want and need, which are strictly economic. Because the art object exhibits orderliness without culture domination, it uncouples itself from the enchaining bonds of the marketplace and dissociates itself from any purposiveness other than its own free expression. The work which is expended upon art remains in the category of play,for it submits only to its own lawfulness. But this kind of work endangers the social order, for it bakes no bread and builds no bridges in the sense that these activities symbolize the solution to the scarcity problem. The pressures of economic need require a stable social order,and requires that men engage in disagreeable toil as the only long range means for meeting these needs. Now,may we not dream that automation and electronics can bring about

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the miracle ? May we not hope that these marvels can supply a steady flow of economic goods and that the taint of original sin which condemned Adam to work by the sweat of his brow and hence to submit his own self-creation to the dominating forces of fixed order be purged by that very power, intelligence, which imposed this condition upon him in the first place ?

This kind of social order would be non-repressive; it could produce individuals who had the freedom to fulfill themselves uninhibited by the coercive ideal of hard work for the sake of hard work. This ideal would give way to the possibility of man's fulfilling himself through vocation in which he established his identity through what he does. Vocation becomes the means for achieving selfhood, not only for providing bread. Art appears to offer the only means whereby this ideal can be realized, for it alone can create a universal order which is beauty, and accept a form of work which is really play. It alone can allow free reign to the pleasure principle without exploding civilization; it can provide an order which is sensuous rather than an order of coercive control; it can permit repression without neurosis, production apart from commodity, autonomy without chaos.

A society organized in accordance with aesthetic principles may be visionary, but not impossible. Already some laborers in this country are on a twenty-five hour work week; they still have one hundred and forty-three hours each week to live. What will they do during their ninety or more waking hours, and how will they do it ? What will they do when automation allows the reduction of the work week to ten hours, or to five ? It is at least conceivable that the repressive force of the economy will be eased. To any extent that this occurs, the structure of civilization itself will be affected. It is my view that a major responsibility which higher education must face during the coming decades, or perhaps centuries, is the directing of these fundamental changes in our culture,in effect, the designing of a society which will function on the basis of aesthetic principles.

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KRISHNAJI, THE MAN AND HIS TEACHING

AN APPRECIATION

ROBERT POWELL

IT seems to me that we cannot know the man if we do not understand his teaching. Krishnaji—as some of us affectionately call Krishnamurti—talks about life seen and experienced comprehensively, not according to any particular view-point or school of thought, but completely afresh, free from the dead ashes of yesterday. It is therefore really a misnomer to talk of a "teaching" for this word implies something static: some information, a set of rules, which is to be applied to obtain a certain result. His is the very Voice of Life itself, undivided within itself, flowing eternally.

Most people will only take note of Krishnaji's teaching (for lack of a better word, we shall go on using it) after knowing who he is, what his qualifications are, etc., because they want a guarantee that they are not wasting their time. It is this very urge to be certain, flowing from insecurity, that prevents the state of listening, or undivided attention, which is so essential for a proper understanding.

In this article, which aims to introduce the reader briefly to the work of J. Krishnamurti, the writer mainly concentrates on discussing the obstacles that frequently present themselves to newcomers. He hopes this may serve some purpose and considers this certainly more useful than any formal explanation of the teaching.

The commonest approach one finds people have to Krishnaji is to look upon him as the Teacher, who through his Teaching is going to give them something. It is this very attitude which Krishnaji exposes again and again as false; often as bluntly as in the following words: "I have nothing to offer you." If there were only an elementary understanding of the teaching such an attitude would not exist, for the very essence of what Krishnaji tries to convey to us is the absolute necessity for standing on one's own feet; and until we do this nothing will be of any avail. Physically we are obviously dependent upon one another—and nothing is going to change this—but psychologically to depend upon another for one's happiness means that one will always remain a psychological cripple.

It seems to me that the main reason for this futile approach is a failure to understand the right significance of "knowledge". When we go to a *guru* we have the mistaken idea that there is somebody who "knows" who can tell us how to live. How naive! We do not yet see that **nobody knows**, for the simple reason that in the spiritual life knowledge counts

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for nothing. No information, no blue-print for living happily and sensibly exists; life cannot be imprisoned within a formula, and that is the beauty of it. The only thing that counts is "being", and being is always fluid and never fixed; it is the Unknown, and can therefore never be reduced to an extrapolation of the known, which is an abstraction, a static picture of the past. The trouble is that we are so mesmerised by words that we think the known and the Unknown are a pair of opposites; we do not realize that what lies beyond these words is not just the usual antithesis, but that they represent dimensions of reality, which are so utterly different, that they cannot reasonably be expressed in symbols which normally refer to the one dimension only.

Another common misapprehension concerning Krishnaji is that his teaching consists of ideas. If they were ideas then his teaching would be a conventional one, consisting of a body of theories, either speculative or doctrinaire. But it is nothing of the sort. Ideas, concepts, are bundles of thought orientated within a certain neat fashion which we call "consistent" or "logical". These concepts can in turn be bundled together in a neat and more or less elegant fashion, in which case we have a "theory" or "philosophy". But concept or philosophy both are woven of the texture of thought; and can thought ever liberate us ?

In our ignorant state we ever go from thought to thought, and all our misery (psychologically) exists within thought. Thought can be painful or pleasant, depressing or hopeful, which is the play of the opposites, ever changing, ever looking to the future, and thereby building the whole illusory world of the mind with its conscious and subsonscious layers — according to whether its constructs are recent or ancient acceptable or inacceptable to the social climate.

There is no limit to the ingenuity and grandeur of the conceptual constructions the mind builds for its own gratification and security; they appear so plausible as to give an impression of truth—and so we get caught, for we always underestimate the power of the mind to create its own illusions. After all, we have only got to look at dreams to see the dramatic capacity of mind. So in this web of unreality, which is of the mind's own making, we are imprisoned.

The mechanism of thought is that it operates by association, i.e., one thought leading to another—and whether this sequence is logical or illogical, that is beside the point. In other words, we are **being** thought, rather than producing "our" thought. Because of its determined nature thought can only lead to more thought, but can never reach out to what lies beyond thought; therefore, idea can never liberate. We may say that suffering is thought, and that liberation is freedom from thought, although not its suppression or the escape from it. Or, in different words: when suffering we are the tools of thought; when free from suffering thoughts are the tools of Reality, and such thoughts are in the service of Love rather than in the service of the thinker.

So if for lack of a better word we talk, in slip-shod manner, of

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Krishnaji's "ideas", we must be aware that they are not "ideas" in the true sense of the word, but psychological facts presented to us in a way which is most likely to awaken us to their truth. Therefore, it is not a matter of agreeing or disagreeing with them—as we do in the case of opinions and theories—but merely to see or not to see their verity, and it is only the Truth that will set us free. The best way to see their truth is to look at these facts, as they are actually manifesting themselves from moment to moment, in the mechanism of our thinking; i.e., applied inwardly, and not to project them outwardly, either on others or on society as a whole. When we know ourselves we shall know the world, but not the other way round.

Contrary to popular opinion, for seeing the truth of what Krishnaji talks about no effort or favourable spiritual predisposition (if there be such a thing) is necessary. Here, we are all on equal ground, regardless of our intellectual or professional attainments, regardless also of our social positions or the colour of our skins. The curious thing, the wonder of it all, is that only one thing is necessary, although this is absolutely essential, for our benefiting from the talks. And that is that we **listen**—such as we have never listened before, with all our heart and soul.

This is the peculiar quality which the Word of Truth has, when spoken by the embodiment of Truth, that the very listening to it has a liberating effect. It is the immediate impact of the Word and the Man that matters, and this is not to be obtained by making notes and taking them home for study, as though it were a college lecture. Also, listening in the required manner presupposes a state of pure listening in which there is no "listener", with his knowledge about the speaker and the spoken. Thus, in such listening there must be no prior knowledge of the speaker as the embodiment of Truth—for this very knowledge would influence us, e.g., by accepting him as our Authority or as a reaction against him, and thus prevent the state of listening. Many are lured to attend Krishnaji's Talks on account of his reputation as an extraordinary man, the supreme teacher, etc. This so easily gives rise to an attitude of exaggerated reverence, the worshipping of the teacher, which goes at the expense of, and actually runs counter to, the teaching. After all, the "man", however extraordinary, is not of greatest importance to us, only his teaching is; as Krishnaji himself once remarked "the teacher is not important, throw him overboard".

Another, all-too-common view of Krishnaji's teaching is that it deals with "problems". At the Saanen Talks in 1962 a lady assured me that she must under no circumstances miss the next talk for she felt certain that on that occasion her own particular problem would be dealt with. Certainly, Krishnaji deals with human problems, and a great variety of them such as envy, fear, hatred, love and so on; but does he solve them ?

That we have problems in our lives is an undeniable fact, and that

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we cannot just leave and ignore them, is only too obvious. Yet, at the same time it can be observed that no sooner we have solved one problem than another problem crops up—and so we are never free from problems. In other words,to continue "solving" individual problems one after another—which also means, of course, to be in a state of continual conflict —does not have any better result than to ignore them. In the former case, it is like a festering sore, but nicely bandaged, which all the time undermines our health and saps our energy. In the latter case, it is like the symptomatic treatment of a disease; no sooner have we got rid of one symptom than another becomes manifest. We have not cured the disease at all but only varied its manifestations.

It is for this reason that Krishnaji throws back the problem at us without solving them; he refuses to be a glorified Dorothy Dix. He is not interested in the problems as such, but only uses them to get at the underlying state of malaise which has thrown them up. Thus it may be said that problems are only incidental in Krishnaji's teaching, since in the spiritual life the mere solution of a problem is, in the ultimate, its avoidance. So, although Krishnaji appears to discuss just about everything under the sun, he is really talking all the time about the same thing; each time in a different way perhaps, but always pointing to that intangible something beyond the words, which is the only thing that matters in the world.

Finally, in a chapter that discusses some of the difficulties which confront the person anxious to understand Krishnaji, something may be usefully said about his medium of exprssion, the words he is using.

The extraordinary thing about words is that, applied to things spiritual, they distort and often create, on superficial examination, the very opposite impression of what was intended before the idea was verbalized. So we hear, for example, people talk only too often about Krishnaji's "teachnique of setting the mind at peace".Thus a description of certain aspects of his teaching has apparently created the impression of a "technique", a practice to be followed, which is, indeed, the very opposite of what was endeavoured to be conveyed, and this notwithstanding Krishnaji's exceedingly clear and outspoken remarks on this point. The spiritual life lies so much outside our ken, and its"otherness" is so total in relation to our normal way of functioning on the level of the intellect, that only a thoroughgoing examination of the problems reveals the truth that there cannot be a technique, a path.

To the person who is wont to the intellectual, analytical approach, here lies one of the greatest stumbling blocks. Being used to juggling with concepts, he expects Krishnaji to supply him with a neat package of nicely labelled ideas and theories upon which he can get to work. But just because Krishnaji knows our fixation on words, he uses no technical jargon whatsoever; in this respect also Krishnaji is unique amongst the world's great religious teachers. And further, the simple ordinary

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words he uses are not necessarily employed in their accepted everyday meaning,but rather is their significance to be understood from the whole context. Herein lies, of course, a danger of misinterpretation for the person who is foolish enough to pick up only a fragment here and there of the talk. Many an intellectual has come away from a Krishnaji talk with one or two isolated sentences firmly fixed in his mind—or jotted down in his notebook—and promptly proceeds to build a whole philosophy upon this false basis. And, of course, these idle thought structures are always closely interwoven with the prejudices and preconceived ideas of the person concerned !

Then again, because with Krishnaji words are never fixed but always pliable and fluid, he may use the same words at different times in totally opposite senses: Although the teaching itself has never changed since his enlightenment—and had it changed it could not have been true, for only philosophies and theories change, but the Truth which is timeless,just is—the expression of the teaching has changed considerably and words such as "emotion" and "experience" have acquired an altogether different meaning. For example, in the early years when his expression was very concise and many things were implied but unspoken, Krishnaji used to say that if you wished liberation you should seek experience. These days when he is more explicit and easier to follow, he says that no amount of experience will lead to liberation.

On a strictly verbal level these two sentences *taken out of their contexts* obviously represent a logical contradiction, but on the level of true meaning they point to the same thing. Since it is not the task of the present writer to "interpret"Krishnaji—having no intention to betray him—it is left to the reader to work out these things for himself. No doubt books could be written, and undoubtedly will be written in the future by scholars, about the"evolution"in meaning of certain of Krishnaji's terms, which will then probably be called "concepts". This author will have none of it ! Suffice it to say that the life of the spirit,as soon ae the mind comes in, is riddled with paradox.

The intellectual who has worked through Krishnaji's recorded talks from beginning to end as though it concerned the academic study of a law book or a science textbook, will undoubtedly be greatly irked and the word "inconsistency" will probably not be far from his mind. But it is just this almost casual, playful attitude towards words,which is a very essential part of Krishnaji's teaching; it means that man is master of the word, and not its servant, as is now generally the case. It is also part of his unequalled pedagogic technique, for it forces us to be on our toes all the time, and really listen with fresh minds. And is it not the familiarity with the associations of words used again and again in the same fashion, which reduces the mind to sleep and staleness ?

It is not necessarily what Krishnaji says that matters most,but what one can read between the lines which is the really precious. After all,

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words and grammar have their limitations, and on that level there is only the intellect that can respond.

Who would not marvel at the truly scientific exactness and perfect economy with which Krishnaji uses words, his complete mastery over them, and notwithstanding their limitations, his ability, to convey to us a glimpse and a taste of the Infinite ? In this respect, too, has there been any other teacher like him ? It is this fact, above all, his sheer artistry and the incredible beauty of expression, which compels some of us to attend his Talks year in year out. This is not felt as just another gratification, but the very act of listening to Krishnaji confers a blessing !

To at least some of us the spectacle of Krishnaji, unrecognized by the world, giving a public talk is the true world-shaking event, and not the latest "crisis" manufactured by the politicians. Although these few gentlemen are playing with nuclear fire, and are capable of killing large numbers of people and effecting vast physical destruction,from Eternity's view point all this is as nothing. Worlds, civilizations, may come and go, but consciousness remains as before, and it is here that the real crisis is enacted.

Although in the various convulsions of mankind's evolution this diseased consciousness may undergo certain modifications and adjustments, these are of no avail to resolve the acute crisis. This crisis cannot be done away with by doctoring with the mind in the forms of psychoanalysis, organized religion, moral re-armament (sic !), so-called better education, or by the raising of the material standard of living. It is not evolution or refinement that can save us, but only a psychological mutation, a complete breaking away from any pattern of the past. This seems to me the true significance of Krishnaji's presence in the world today and his ministry, that some of the momentum of the mechanical process of evolving consciousness may be gathered and utilized as essential energy in this mutation, the explosive shattering of consciousness.

Whilst the author does not expect everyone to share his views on the significance of Krishnaji's ministry as an historical event of the very greatest order, he is convinced that it is essential to be sensitive to his words from the very beginning and see their utterly revolutionary nature, if one is not to waste one's time completely. Those people who say : Oh, he is not giving us anything new,it is only applied Christianity or applied Buddhism—and the author knows that there are quite a few of them—might just as well occupy their time more profitably elsewhere. They are not missing a spiritual opportunity, for obviously they are not yet ready to receive the naked truth, with all its beauty but also with all its upheaval—being still satisfied with a continuation of the comforting pattern of the past. It is perhaps not altogether surprising to observe that generally people either click at once or don't at all with Krishnaji's teaching, and there appears to be no in-between.

It is common for organized religion to emphasize to prospective

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converts the importance of the right attitude towards its particular cult. With regard to Krishnaji it seems to the writer of the utmost importance to have no attitude whatsoever, to come to the man with empty hands; otherwise we shall not meet him at all. This means to have no foreknowledge about him—the approach of a child. Also, we shall not even expect to get the slightest thing out of the teaching. Normally, a teaching implies a means to an end, whether the end be "virtue", "holiness", "salvation", or something else. Krishnaji's "No-Teaching", however, is not to be applied, and it does not "get you anywhere". It has basically no utilitarian value, although in practice one may find it has in an indirect way—but by then this is no longer seen to be of very great interest. One must love it (in the true sense of the word) for its own sake.

After having said all this, and we are still interested in Krishnaji, we shall maybe have eliminated those who would go to him for the wrong reason (i.e., with an attitude), and really listen without any motive, with an attention that is undivided because there is no pressure by the mind. We shall then perhaps find that when there is this total attention, a state of "pure listening" has come into being, a stillness in which there is no effort, no application of any kind, yet something happens immediately. Then maybe, the miracle takes place: we shall be given richly—and we shall know who he is.

ADDENDUM

For the benefit and interest of those who are already acquainted with Krishnamurti's work, a short résumé of what the author considers to be the heart of the teaching is appended here. This will merely enable the reader to focus his mind afresh on certain essential points,and,it is hoped, will induce him to refer back to the original writings. It is presented entirely in Krishnamurti's own words as they come to us in a work like "*First and Last Freedom*" (publ. V. Gollancz, London, 1954).

Those readers who are not yet familiar with Krishnamurti are advised to skip the following section and turn instead directly to the source; for this is the nature of the teaching that no résumé can do it full justice or serve as a substitute for the original.

"Virtue is the understanding of what is and therefore the freedom from it. This comes about only through passive awareness, which is extreme alertness,from moment to moment without accumulating the experience which awareness brings. The state of creativeness comes when the self,which is the process of recognition and accumulation, has been completely understood, and so ceases to be.

When action is compelled by an idea, action can never liberate us. Action without ideation—the only state in which there is complete understanding—is possible only when the idea ceases; and the idea ceases only when there is love. So long as there is mentation, which is a reaction based on the past, there can be no release.

Belief and knowledge are related to desire and act as barriers between oneself and that which is, in interposing the conditioning reaction of the past.

Because we feel empty, nothing,we base our lives on effort,struggle, to become, to "fulfill" ourselves Is not all such effort the activity of the self, with its inevitable result of more conflict, more misery ? The moment of creation is not born of struggle.Only in not running away from

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the void, in accepting that emptiness one will find that there comes that creative state which alone brings happiness.

All desires are moving, transient—through not realizing this we live in a state of continuous contradiction: what we want to be and what we are. The function of the mind is to be separated; otherwise your mind is not there. Thought is nothing but reaction, thought is not creative; it is the result of the desire to be, politically, or religio-sociologically. Whatever thought, mind, creates is a circle within the field of the self; complete realization of this, complete understanding of the process of the mind, causes the mind to become quite still; this results in the dissolving of the self. Beyond the physical needs, any form of desire becomes a psychological process by which the mind builds the idea of the "me"and strengthens itself at the centre.

The thinker is the thought. The maker of effort and its object are the same. Revolution, this psychological, creative revolution, in which the "me" is not, comes only when the thinker and thought are one, when there is no duality such as the thinker controlling the thought; it is this experience alone that releases the creative energy which in turn brings about a fundamental revolution, the breaking up of the psychological "me"."

When Intellect Forgets To Feed The Soul

If the sun must press on smoke and the earth is troubled
Longest in the heart with a dream of burning,
If the hills can force out deeprooted towers
At the awakening.

If the fire that burns in graves is as long as loving,
When a widow waits till her sons are fathers,
And revenge is measured for its perfection
By generations—

I say I stay free to burn in the morning water:
Now no one can dam up my voices, no one
Teach me not to carry the stars or break the
Branches of reason.

You who feed a living soul with the dung of sparrows,
You who warm your flesh with unliving ashes,
I have found the wood that was warm at midnight
Cold in the morning.

See, the starfish have five fingers but hands are stronger,
Fools must hide in ashes but fire is stronger,
Statues bring no fruit but the breath of living
Burns for a harvest.

JOHN KING-FARLOW

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ARE NECESSARY CAUSAL CONNECTIONS POSSIBLE ?

JOHN O. NELSON

IF the view that causal connections cannot be necessary connections is to lay claim *de jure* and not merely *de facto* to the wide acceptance it has received in empiricist quarters it must show this justification: either (A) that it is self-evidently true, or (B) that it is supported by sound arguments. In the following pages I shall endeavor to demonstrate that neither of these conditions holds; that in the first place the doctrine is not self-evidently true but indeed—to judge by the immediate appearance of things—the very opposite; and in the second place that the arguments supporting the doctrine are entirely specious.

In making these claims I am using the term "necessary connections" in the same sense that those who deny there can be necessary causal connections have usually had in mind. Following Hume, it is roughly this: X has a necessary connection with Y if and only if we cannot conceive there being X and not Y without altering our conception of X.[1]

While on the subject of Hume I might explain the frequent citation of passages from that philosopher in succeeding paragraphs. The doctrine that causal connections cannot be necessary connections, which for the purposes of reference I shall call "the empiricist doctrine," is generally traced back to Hume.[2] The difficulties associated with interpreting Hume's scepticism extend, of course, to interpreting his views on necessary causal relations. But there can be no doubt that the followers of Hume—and that is to say, typical empiricists—deny in a straight-forward manner the possibility of necessary causal connections[3] and that the grounds for their denial lie in the arguments developed by Hume. Both, then, as the alleged parent of the empiricist doctrine and as the source of its widespread influence it seems only appropriate to take, so to speak, Hume as our text.

The plan of the present paper therefore runs as follows. After showing that the immediate appearance of things does not establish the empiricist doctrine I shall endeavor to show that the arguments of Hume do not either, being one and all specious. These arguments I shall arrange in an order of what I consider to be increasing power and persuasiveness,

1. Hume, 'A Treatise of Human Nature,' Bk.i,part 3,sec.1,pp. 69-70, Selby-Bigge Oxford edition. All references to this work will be to this edition and will be abbreviated THN.
2. For instance. Ayer, 'Language, Truth, and Logic,' Dover edition, p. 150.
3. For instance, Feigl, 'Notes on Causality,' 'Readings in the Philosophy of Science.' ed. Feigl and Brodbeck. pp. 415-416.

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the most powerful and persuasive coming last. My reasoning here is that the more powerful and persuasive a fallacious argument is the more penetrating and complete must be the analysis that attempts to lay bare and disarm the fallacy.If I am right in this surmise it is essential in refuting the Humean arguments to proceed in the manner outlined. In addition, the final outcome of such a procedure must be,if successful,to provide a fairly accurate description of the concepts under investigation. And this, it seems to me, is the ultimate desideratum of any philosophical inquiry.

I should like to add one further note prefatory to carrying out the the present project. For the purpose of indicating several broad divisions in the classes of argument under examination I have here and there set down a number. I shall not be concerned to defend the accuracy of these divisions. Indeed, I shall not be surprised if where I saw a natural division the reader sees none, and vice-versa. The arguments in question overlap and criss-cross in many directions. Any division of them must therefore, I fear, be somewhat impressionistic at best.

A. That the Empiricist Doctrine is not Self-Evidently True

Consider the following instance. We are building a house and we are asked why we are bracing the walls. We truthfully answer, "When the wind blows it causes a pressure on walls." Here we infer as an effect of blowing wind a **pressure upon walls**. According to our previous specifications there exists a necessary connection between a wind blowing on a wall and a pressure upon the wall if when we conceive there to be a wind blowing on a wall we must also conceive there to be a pressure on the wall or else alter our conception of a blowing wind. But clearly when we try to conceive a wind blowing on a wall without there being some pressure exerted on the wall we utterly fail.

B. That Hume's Arguments Supporting the Empiricist Doctrine Are Specious

1. It is maintained by Hume as a general principle that all existences are discrete or separable.[4] Obviously, if we agree to this tenet we cannot plausibly maintain that there exist necessary connections between events or existences,in that then we shall have to maintain both that one event must accompany another and at the same time that it need not do so (being separable).

But why should we give credence to the tenet of separability ? The immediate appearance of things, according to which causal inferences do sometimes depict necessary connections, certainly seems to refute it. Our only reason for accepting the doctrine must be still other principles or arguments;and since those principles and arguments are essentially the same that are advanced for denying necessary causal connections, in overthrowing the one we overthrow the other. What follows, therefore, may be construed as serving both ends.

4. THN p. 10.'There are not any two impressions which are prefectly inseparable.'

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2. It is argued by Hume that the inseparability or necessary connection of objects is gainsaid by the fact that we can conceive "any objects to be non-existent this moment and existent the next."[5] But while we can think of there being walls and then no walls,wind and then no wind, pressures and then no pressures, we do not seem to be able to think of there being a wind blowing on a wall and no pressures exerted. Clearly, then, arguments that intend to show that we can conceive an individual, isolated thing existing or not existing as we please do not demonstrate that there are not necessary connections between existences (plural).

3. It is argued by Hume and others that there cannot be necessary causal connections because when we observe events we find nothing contained in them or between them which goes by the name of necessity(we find no impression of necessity as such). When we look for what the term "necessity" (or "power") represents(for the impression of the idea) we find at most repetition of events and a feeling in our minds. Hence, "necessary causal connection" can only mean repetition of events or a feeling in our minds.[6]

In effect, Hume and those who follow him here are pretending that the term "necessity" is a name standing for some simple quality or complex object, like the words "green" and "chair". First, a search is instituted for the simple quality; this perforce failing, a search is made for the complex object.The very nature of the last enterprise intrinsically ensures that we shall equate any experiences that are related to necessary or causal connections and that might possibly bear names, e. g., repetition of events and a feeling in our minds, with the meaning of "necessary causal connections." But in this we are tacitly assuming that all nouns and adjectives function like names.Minus that assumption our argument has no more force than an unexamined hypothesis and surely —in the light of Wittgenstein's investigations—that is just what we shall want to call.

When we examine the actual use of the term "necessity" the comparison suggests itself, not with naming words, but with a grader's application of the marks A, B, C, etc.,to examination papers.Take, for example, the case of a grader marking an examination "B." He does so, not because he finds some queer property in the examination called B but because the examination meets certain material requirements for being called B. These material requirements, furthermore, are not general to B examinations and to look for such general material requirements would palpably lead one into all sorts of nonsense and confusion.If the exami-

5. In the passage cited Hume, to be sure, is specifically interested in showing that the proposition, 'Whatever begins to exist must have a cause of existence,' is not intuitively true or demonstrable. But he believes that in establishing this point he also shows the separability of objects see 'THN'. p. 80

6. See 'THN',sec. 14, esp. pp. 161 ff. The same sort of reasoning appears to underlie much contemporary discussion of the subject. See J. Kemeny, 'A Philosopher Looks at Science' (Van Nostrand, 1959) pp. 48-49 as an example.

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nation is in history. the requirements to be met are one thing, e.g.,does the student give a good account of the Reform Bill of 1832;if in English, another; if for freshman, one thing; for graduate students, another, and so on. But is not something similar the case with respect to our application of the term "necessary" (or "must") to causal states of affairs ? When we say that a blowing wind must produce a pressure on a wall we obviously do not do so because we find some property called "must" (or "necessity") in these things or between them,but because the requirements for our saying "must" are met. These requirements do not, as in the example of marking examinations B, consist in particular specifications conceived by us; but they do have their basis in particular, non-general elements, namely, our knowledge of this or that particular X and Y. For instance, I say that a 100 ton rock falling 100 feet squarely on a man **must** produce his death; that is, on the basis of what I know about rocks, weights, distances and men, I consider the requirements fulfilled that entitle me to say "must",But must 100 tons of water falling 100feet on a man kill him ? I cannot say, not having enough knowledge of the properties of falling water to go by. In either case, my use of the term "must" is not the naming use (the impression of an idea). We have here a different use of words. Therefore, the charge that there cannot properly be said to be necessary causal connections because we can find no impression in things which goes by the name "necessary" may be dismissed. The charge is of course true, but it is irrelevant.

At this point, however, it may be argued: even granted that the word "necessary" is not a name for an impression, analysis shows that the meaning of "necessary" precludes there being necessary causal connections. For when we say the requirements are fulfilled that entitle us to say that X **must** cause Y, these requirements, by our previous admission, are that X cannot be **conceived** without Y except by altering our conception of X. When this formal requirement is satisfied and only when it is we are entitled to say that X **must** cause Y. The impossibility of conceiving X without Y is therefore both the neccssary and sufficient condition for asserting that X has a necessary relation to Y, and what else then can we mean when we apply the term "necessary"to X and Y? If, though, the meaning of the term "necessary"consists in the necessary and sufficient conditions for applying the term, and these in turn are the impossibility of conceiving X without Y,then the term "necessarily" certainly does not signify some characteristic of events but a subjective condition of our minds. Hence, strictly speaking, causes cannot be necessary;and when we speak of them being so we are speaking in a very misleading fashion.

Not it must be admitted that in science a thing (element, etc.) is sometimes equated with its **theoretically** necessary and sufficient conditions. For example, heat is defined as the movement of molecules. Interpreting this definition we say that,theoretically,there cannot be heat without the

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movement of molecules, nor the movement of molecules without heat. Since philosophy aims at being a science of some sort it is tempting in philosophical inquiries to treat all biconditionals as similar to the theoretical biconditionals of science. If we have already committed ourselves to treating "necessary" as a name (which we have, when we ask what the impression of the idea is), we are not merely under the temptation, but indeed we are forced by the very logic of our commitment, to treat the biconditional, X must cause Y if and only if we cannot conceive X without Y, like a theoretical biconditional of science. But this is an error, and it is an error precisely because it requires us to identify the necessary and sufficient conditions for applying the term "necessary" with the meaning of "necessary".

Biconditionals like, "X necessarily causes Y if and only if we cannot conceive X without Y," "An examination is a B examination if and only if it meets the requirements conceived by us for B examinations." or "A person may legally vote if and only if he has been properly registered," I shall call "biconditionals of entitlement." While it would not be improper to maintain that such biconditionals express, like theoretical biconditionals, necessary and sufficient conditions, it is clear that they do not, like some theoretical biconditionals, express identities or "real natures". Thus, if I am properly registered to vote, and only if I am, then I may legally vote. It is possible, however, for me to refuse to perform this act of voting that I am entitled to perform. And in general it may be said that in matters of entitlement necessary and sufficient conditions for an act are not, as in some theoretical biconditions, equatable with the act. They confer the right to the act, but not the act itself. Thus, on the face of it, we may deny that "I vote" is identical with "I am properly registered to vote" or that "This examination meets the requirements conceived by us for calling an examination a B exam" is identical with "This examination is a B examination" or that "I cannot conceive X without Y" is identical with "X is necessarily related to Y".

A further point that needs to be made in the present connection is that if, in our philosophical discussions, we do equate biconditionals of entitlement with the meanings of the terms involved what we logically accomplish is tantamount to the case in which we refuse, in ordinary life, to go beyond asserting the biconditionals of an entitlement. But consider now the case where the necessary and sufficient conditions of entitlement are present and we refuse to exercise the right they confer on us. For example, we are willing with respect to an examination to say no more than, "This examination meets the requirements conceived by us for calling it a 'B'," Clearly, we then imply either some doubt concerning the validity of our criteria or the suspicion that the examination met our requirements dishonestly or improperly. Excluding the latter alternative (which has no bearing on the present discussion), we at once suggest that the grade 'B' which is indicated rests on a subjective basis. This conse-

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quence follows from the fact that once we reject criteria of entitlement by refusing to exercise the rights they confer on us a **subjective basis** is all that we can lay claim to. On the other hand, when we exercise the rights that biconditionals of entitlement confer on us we *ipso facto* signify acceptance of our criteria and so remove them from any question or doubt. But when criteria or conditions of entitlement are removed from question or doubt they no longer comprise another topic **in addition** to their application. That is to say, in applying them, we are left with only pure descriptions of fact. It is in this way that moral attributions, e.g., "He is a good man," possess the character of pure descriptions of fact, but only so long as we **make** (i.e., exercise the right conferred on us by certain biconditionals) those attributions. But let me illustrate what I mean by an example. Take the assertion, "This examination is a 'B' ". In making this assertion we in fact exercise the right conferred on us by certain biconditionals of entitlement; and thus no question is left over as to the validity of the criteria employed. Since, therefore, these criteria are not in issue they vanish, both logically and psychologically, from consideration and view, with the result that our assertion has the status and sense of an objective statement, a statement characterizing the examination and **nothing else.**

What I have been saying concerning the marking of examinations holds for the application of the concept of necessity (our use of the term 'must'). To express the necessary and sufficient conditions for asserting "X is necessarily related to Y," is not the same thing at all as to assert that X is necessarily related to Y. To say no more than, "We cannot conceive X separated from Y" is, on the face of it, to make a partially subjective statement; to suggest some question as to the validity of our powers of conception, etc., whereas to exercise the right that is present and assert, "X is necessarily related to Y," is to make an objective statement concerning X and Y; no question of our powers of conception is implied; and hence we assert, in effect, not that we cannot conceive X separated from Y but that X cannot **occur** separated from Y.But plainly the sense of a subjective statement is not the sense of an objective statement; and consequently it cannot possibly be the case that the meaning of "X is necessarily related to Y"may be equated with the necessary and sufficient coditions entitling us to that assertion.

Concomitantly, no valid question arises as to our rights to proceed from the necessary and sufficient conditions for asserting "X is necessarily related to Y" to that assertion itself, since those conditions themselves constitute the right. Thus, being unable to conceive a 100 ton rock falling 100 feet on a man without killing him, I have the right to say that the rock must kill him; and exercising this right, I say with as absolute propriety as is mine in marking an examination B, "The falling rock must cause the death of the man". Obviously, then,it cannot be impossible for there to be necessary causal connections, if this is meant to be a

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question of the proper application of the concept of necessity(the proper use of the term 'must'' or "necessary"). Nor,from what was said before, can it rightly be maintained that in asserting necessary causal connections between existences we are not really asserting necessity but something else or that we are not really asserting a necessary connection to hold between the existences but are merely describing some internal impression or repetition of events—that is,the necessary and sufficient conditions for asserting necessary causal connections.

4. There is an argument that Hume uses to show that the discernment of necessary causal connections cannot rest on *a priori* reasoning but must rest on experience. This argument might be restated to omit reference to the specific issues of the *a priori* and at the same time bear generally on the question of the separability of events and necessary causal connections. We might argue: Adam looking for the first time at a billiard ball hitting another might as likely conceive one motion as another, or none at all; and so for all other existences or phenomena. Therefore, existences or events are separable and not necessarily connected.[7]

The undeniable force that this sort of argument exercises on our minds, so that the more we contemplate it the more we are convinced, would seem to lie in our human knack and propensity to put ourselves in the place of others. Putting myself in the place of Adam, indeed I do discover that I now as easily conceive a 100 ton rock not killing a man as killing him when falling on him from 100 feet,a billiard ball going in one direction as another,and so on.It seems therefore that what I said I could not conceive I can,and hence that I must give up asserting the necessary causal connections that I have been asserting and all others.

But here a psychological trick is being played on us. No doubt at all, in the role of Adam, we can conceive all existences whatsoever as separable from all others. We can also suppose, however, that Adam, when presented for the first time with addition, added two and two to be five, three,or anything else.Are we to conclude from this that two plus two may not make four ? We might as sensibly believe that because, by turning quickly in circles we can make the world seem to spin around us, it is in fact spinning around us !

The point is:our attribution of necessary causal connections between existences rests on our knowledge of those particular existences. Thus, the real question at issue is not : can we or can we not conceive X without Y, but can we conceive X without Y on the basis of what we know of X and Y. Naturally, if we replace knowledge with ignorance, as we tacitly do when we put ourselves in Adam's place,we eliminate a *fortiori* every possible attribution of necessary causal connections. But is this not a perfectly incredible thing to do ? In treating Adam ignorant as the arbiter of truth, and Adam knowledgeable as in error, we propound the

7. Hume, 'An Enquiry Concerning Human Understanding', section four, part one.

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amazing doctrine that the truth lies in ignorance and falsehood in knowledge. Even poor Adam, it may be presumed, gave up that pretense just as soon as he acquired some knowledge, and having learned about billiard balls and addition found it no longer conceivable that when struck billiard balls should fail to move or that two plus two should make five.

"But are we not all—the wisest of us just as much as Adam—fundamentally ignorant ?" it may be retorted. "We say, 'These billiard balls striking in this way must take those directions.' How can we know, though, that in the immediate future billiard balls and other things will not behave in ways completely different from the ways that we now envisage ? We cannot. Thus, as far as we know, the billiard balls may move in any way whatsoever or no way at all when struck; cloth when sprinkled with water may not become damp, and so on. But clearly it is impossible to maintain both that the billiard balls and other things must behave in certain ways and yet that they may behave in any way whatsoever."

Now as long as we insist on contemplating the above argument we must again find ourselves, as with the Adam argument, impelled to give our assent to it. In asking ourselves questions which we cannot answer, like "How can we know the future will be like the past ?", we must always produce in ourselves feelings of doubt and ignorance; and these feelings, in turn, must leave us psychologically reluctant to assert necessary causal connections. But such feelings do not themselves constitute evidence.[8] We still want to ask : Is the argument in question sound—is the conviction that it produces warranted ? And to this question the answer is negative.

In the first place, we might relevantly point out that real ignorance as opposed to mere feelings of ignorance is determined by empirical and not logical inability. We are ignorant, for instance, of what the surface of Venus looks like because as yet we have been unable to get hold of certain empirical data. But while we are unable to square the circle or write down the largest integer we are not ignorant of how to square a circle and we are not ignorant of what the largest integer is. Inability here is a logical inabilty and hence does not count for or against ignorance. It has nothing to do with ignorance.

Our inability to answer the question, "How can we know the future will be like the past ?", is clearly not an empirical inability. It is not the case, for instance, that we have certain powers of clairvoyance which we are not using. Since every particular prediction of the future rests on past experience the generalized proposition, "The future will be like the past," is logically (not empirically) cut off from all evidence or grounds of prediction. By the same token, our inability to answer how we can know the future will be like the past is a logical inability and thus no more a sign of real ignorance than is our inability to square the circle.

8. This is a point we have discussed at more length in "Knowledge of Remote Existence," 'The Review of Metaphysics,' June 1958, pp. 574 ff.

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In the second place,even if there is no logical impossibility in knowing the future will be like the past, e.g., we might want so say that an omniscient Being like God knows that the future will be like the past,there is certainly a human impossibility in it. If, then, we grant what the argument asks us to, namely, that we are ignorant, we do so on the basis of a standard that cannot possibly be used to distinguish ignorance and knowledge in human affairs. Offhand we should say : a standard that can not count in human affairs does not count in them. But in case this seems too short an answer to the argument in question, we might consider these further consequences of assenting to it. If we make some humanly impossible standard, e.g., omniscience, the criterion of human knowledge and ignorance, then we must grant that we know nothing. Logically, this concession entails not only that we give up asserting necessary causal relations but that we replace our present envisagements and understanding of things by mere question marks. For as long as we retain our present envisagements and understanding of things, we do possess knowledge and consequently we are entitled to assert necessary causal relations. Thus, we must now ask ;can we give up our present envisagements and understanding of things for mere question marks ? Obviously, as a practical matter, we cannot. We should perish in a moment if we tried. But even if we decide to ignore practical considerations, we are surely obliged,as rational beings, to answer why we should give up our present understanding and envisagements of things for mere question marks. What warrant is there ? Have we, for example, suffered a breakdown in our present system of understanding and conceptions ? Certainly not. Will we be better off giving up our present system for a mess of question marks ? As we have already pointed out, certainly not ! Is it reasonable to give up something valuable and hard-won for something of no value because we arbitrarily can, or think we can ? Certainly not ! What reason, then, can be provided for assenting to the argument in question ?

The one reason that can, it seems, be provided is that we are able to conceive things behaving in ways different from those that we want to say they must behave in; we can, for instance, conceive billiard balls when struck not moving in the ways we want to say they must, and so on. And clearly, unless we are falling into some fallacy, to concede that we can conceive these things is incompatible with maintaining necessary causal relations between them.

But falling into a fallacy—specifically, a fallacy of ambiguity—is precisely what we are doing in the preceding paragraph. When we say that we can conceive billiard balls when struck moving in all sorts of odd ways, e.g., rising fifty feet straight up in the air, we are using the term "conceive" as synonymous with "form a mental image." Because of their abstract nature, philosophical disquisitions tend to employ the terms "conceive," "envisage," "picture" in this peculiar and impractical way. Thus, in such discussions it will be said that one can conceive a

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cow jumping over a twenty foot tree, or a billiard ball when lightly struck moving 50 feet straight up into the air, and so on. In actual practice, however, we should all want to say that it was inconceivable that a cow jumped over a twenty foot tree (suppose that we were told by a child that he had seen such a thing) or that an ordinary billiard ball, when lightly struck, jumped fifty feet straight up into the air. And the reason is this : in actual practice, the term "conceive" ("envisage", "picture") is used in such a way that we assert "X can be conceived separate from Y" only if our knowledge of X and Y and **other things** can be **harmonized** with "X is separated from Y, "and much the same specifications hold for our use of "inconceivable" ("unimaginable"). Thus, we say that it is inconceivable that a cow can jump over a twenty foot tree because that proposition cannot be harmonized with our knowledge of cows, gravity, and so on; we say that it is conceivable that a cow should be born without a tail because this proposition can be harmonized with what we know, or think we know, about the skeletal structure of cows.[9]

The question arises, consequently: which sense of "conceive" is to be appealed to in deciding whether or not we have the right to assert necessary connections between existences—the practical or the philosophical sense,as they might be called ?If we were previously correct in appealing to Adam knowledgeable over against Adam ignorant, and certainly we were correct, we must take the practical sense of "conceive" as the basis of our reasoning. For strictly speaking, to conceive philosophically is no different from ignorance, in that the forming of mental images—save for one qualification that we shall immediately discuss—rests solely on **will or volition.** Thus, even if we were able to **conceive philosophically** what the sceptic's argument asks us to, we should still want to deny that it was thereby demonstrated that we had no right to assert necessary causal connections.

5. We have said: that which determines whether we can philosophically conceive a thing or not is whether or not we can from a mental image of it. But what determines, in addition to mere will or volition, whether we can form a mental image of say, X separated from Y ? The answer appears to be: definition. If it is logically impossible to separate X from Y—that is, if by definition Y is contained in X—then we cannot form a mental image of X separated from Y.

Now this **logical** fact ties in closely with another argument that is leveled against our right to make assertions of necessary causal connections. The argument, simply put, is that there is no contradiction in conceiving one existence apart from another: hence, there can be no necessary connection between existences, causal or otherwise.[10]

9. For a more extended discussion of this and the following question, see my article 'Conceivability and Scepticism,' DARSHANA, January, 1961, pp. 4-11.

10. VIDE Hume. 'An Inquiry Concerning Human Understanding', part one, section 4: 'The contrary of every matter of fact is still possible because it can never imply a contradiction'.

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What the above argument illegitimately does is to treat causal necessity according to the very same specifications that define verbal and syntactical necessity, and then, because these specifications are not satisfied, it concludes that there is no such thing as causal necessity. Ostensibly the argument makes this uncalled-for identification whenever the term "contradiction" is understood as applying only to propositions or words. If we agree to that stipulation and at the same time suppose that necessity is definable in terms of contradiction, *a fortiori* we restrict necessity to verbal or syntactical necessity (logical necessity). We win our case by definition. And by the same token, we are not likely to convince anyone who does not wish to be convinced.

But the same purposes are much more subtly served, and the same ends reached, if we understand the term "contradiction" to mean "cannot be conceived" and "cannot be conceived" to mean "cannot from a mental image of." For reasons already discussed, in making these identifications we make logical necessity the criterion of causal necessity as surely as if we explicitly equated necessity with definition. And still more subtly and invisibly the same purposes are served where the argument says that we can conceive one existence apart from another. We need to remark here that two existences are made the turning point of consideration, one existence and another. For while two existences or things serve very well to exemplify logical necessity, they do not serve at all to exemplify causal necessity. By definition we can link one thing to one other, e. g., triangle and three-sidedness. Natural however, do not flow from simple causes. Water does not produce damp cloth;a falling rock does not produce a crushed man.Effects flow from the actions of one thing upon another : water sprinkled on cloth produces dampness in the cloth; a rock falling on a man produces the death of that man. In short, it takes at least three things or existences to exemplify causal connections : X acting on Y and the effect Z.[11] To say, therefore, that we can conceive one existence separated from another, e. g., falling rocks from crushed men, water from damp cloths, is very true indeed. That we can, though, illustrates only the fact that two existences do not exemplify causal connections. It does not show, as it purports to and tempts us to think, that existences never possess necessary causal connections.

There is another side to this coin, however. Instead of supposing that causal necessities do not exist because they do not meet the specifications of logical necessities, we might suppose that causal connections can be necessary, but when they are, it is because we have imported definitions or some other basis of logical necessity into them. Thus we might argue that, if we are inclined to say that water sprinkled on cloth must cause it to become damp, it is solely because the definition of water includes dampness in it, as yard includes three feet.

11 See my article, 'A Refutation of the Humean Analysis of Causality," DARSHANA, August, 1962, pp. 95-101.

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In spite of appearances, it is not. The trouble is this. When we sa that one thing causes another, we purport to be asserting propositions whose verifications can be made by reference to experience; we purport to be describing matters of fact (in Hume's terminology). When we say that a proposition is true by definition we purport to be referring to conventions of word-usage; we purport to be speaking about propositions whose verifications are made,not by reference to experience,but reference to dictionaries or our auditor's acquaintance with some language,e.g.propositions like "A triangle has three sides" or "A saffron rose is yellow." Such propositions, it is clear, do not describe matters of non-linguistic fact. If, therefore, we maintain that it is proper to assert propositions like "X necessarily causes Y"or "X must cause Y," but that the necessity we refer to in them expresses a definition, we really deny our original claim that one and the same connection between existences can be both causal and necessary.For if in the proposition"X necessarily causes Y,'the term "necessarily"does not refer to non-linguistic matters of fact and the term"causes"does,we obviously cannot be using the former term to describe what the latter term refers to, and since those are causal connections we cannot really mean that **causal connections** are necessary. And such a conclusion is certainly **not** grist for our mill !

That a theory does not agree with a claim of our own does not, of couse, mean that it is disproved. We shall therefore now want to show that definition is not the basis of the necessity that belongs to necessary causal connections. "But if definition is not their basis, what is ?"it may be asked in tones that suggest, "What else can be ?" Hence this question too we shall want, if possible, to answer.

The following considerations, it seems to me, not only show that causal necessities do not rest on definitions but illustrate the true nature of their basis, that being a knowledge of particular things gained through experience, and an impossibility to conceive which rests **on that knowledge.**

(a) If the proposition "X must cause Y" (or "X necessarily causes Y") both describes a non-linguistic matter of fact and expresses a definition it makes an *a priori* and an *a posteriori* claim at one and the same time: Now there are perhaps propositions that do just that, e.g., one might plausibly hold that the following proposition does, "The monkey is a mammal that is found as far north as Greenland." In the latter case, however, two predications are being made of the subject, monkey: first, that it is a mammal, and second that it is found as far north as Greenland. In the case of "X must cause Y" or "X necessarily causes Y" only one predication is being made of the subject, X, namely, that it necessarily causes Y;and this one predication is being claimed to both describe a matter of non-linguistic fact and to express a definition. That one predication can make two such opposed claims at once appears on the fact of it impossible. Therefore, since the predication of "cause" makes an

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a posteriori claim we may assume that the entire predication, i.e., the predication of necessary cause, does also.

(b) It is not at all difficult to find true propositions of the form "X necessarily causes Y," of which it would be absolutely incredible to maintain that they expressed definitions. Take, for instance, the true proposition, "An atom bomb now exploded in this room must cause the death of that fly on the wall there." Certainly by no stretch of the imagination can one say that killing a fly, much less this fly on the wall there, is part of the definition of an atom bomb. Nor is it credible either to maintain that, while not expressing a definition, we are here computing from a definition, as we do when we assert that all the radii of a Euclidean circle are of equal length. For in fact we may not know what the definition of "atom bomb" is; we may not know what the definition of "fly" is. Indeed, if asked for the definition of these terms, we might very well be unable to answer. Nonetheless, if familiar at all with instances of atom bomb explosions and flies, we should still want to assert that an atom bomb now exploded in this room must cause the death of that fly on the wall.

(c) We might note that logical necessities, e.g., take the ones expressed in "Every point on the circumference of a circle must be equidistant from the center" or "A saffron rose must be yellow," possess a very different kind of force—indeed, a very different "feeling," one might say —from causal necessities, e.g., take those expressed in "A wind blowing on a wall must cause a pressure on the wall" or "An atom bomb exploded in this room must cause the death of the fly on the wall there." There is something artificial in the force conveyed by the first proposition. We do not seem to be confronted with realities that can crush and overwhelm us, but with necessities whose existence somehow depends on our own say-so. And this is patently the case. It is only so long as we commit ourselves by an act of will to certain conventions and constructions of human ingenuity—Euclidean geometry or the English language—that we need grant, e.g., that every point on the circumference of a circle must be equidistant from the center ("But that is Euclid's definition," we can only say, if pressed) or that a saffron rose must be yellow ("But saffron means yellow in English" we can at most explain, if pressed). Remove these commitments: all necessity vanishes. The second set of propositions, on the other hand, conveys the force of realities that can crush and overwhelm us; that do not depend in the slightest on our say-so. To be sure, it is a matter of convention that we use the words "wind,', "atom bomb", "fly", and so on to refer to the things that we do. But certainly we do not think for a moment that any act of volition or convention will banish the fact that an atom bomb exploded in this room must cause the death of that fly on the wall there, or that a 100 ton rock falling 100 feet on a man must cause him to be crushed to death, or that a wind blowing on a wall must cause pressure on the wall.

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(d) Finally, if someone doubted, e.g., that saffron roses must be yellow, or some other necessity resting on definition or conventions of English usage, we could only refer him to a dictionary or to the authority of speakers of English. On the other hand, if someone doubted that, e.g., water sprinkled on a cloth must produce dampness in the cloth,or a wind blowing on a wall must cause a pressure on the wall, or some other causal necessity, we might, it is true, wonder whether our auditor understood our words and so refer him to a dictionary.But we could also refer him to experience. Thus, we might have him handle water and cloth, dip the latter in the former, etc., and then, when we felt that he was sufficiently familiar with these things, ask him if he did not now perceive that water sprinkled on cloth must cause it to be damp. In short, what we should be concerned with in the case of causal necessities would not be the person's familiarity with words but his familiarity with things. And this illustrates the fact that when we ascribe causal necessities,as opposed to logical necessities, it is on the basis of our knowledge or presumed knowledge of the things referred to by our words, not our knowledge of the latter. Thus, we all know perfectly well the meaning of the words "water," "1 ton," "100 feet," "rock," "man," "death." If causal necessities rested on definitions or our knowledge of the meaning of words we ought to have no more hesitation in asserting that a ton of water falling 100 feet on a man must cause his death or need not cause it than we do in asserting that a 1 ton rock falling 100 feet on a man must cause his death. But we are uncertain as to whether a ton of water falling 100 feet on a man must cause his death or not. What then accounts for the difference in the two cases ? Is it not simply the fact that we do not know the properties of a ton of falling water as well as we know the properties of a ton rock falling?And is not this lack of knowledge only to be remedied, not by dictionaries, but by experience and observation ?

6. The last and most powerful argument that might be made against the thesis we have been defending rests on our own arguments. So far we have maintained these views: On the basis of experience and experiment we acquire knowledge of, say X and Y. In terms of that knowledge and our knowledge of other things, we cannot conceive X acting on Y without producing Z. The fact that we cannot conceive this constitutes the necessary and sufficient condition of our right to assert that X acting on Y must cause Z. Now previously we contended that in exercising this right we *ipso facto* depict an objective state of affairs (as we would not if we refused to go beyond asserting the necessary and sufficient conditions of that right). But here it may be objected:certainly it is not by arbitrary fiat that we take our inability to conceive X acting on Y without Z as the right to assert, "X acting on Y must cause Z." It is surely for some reason that, given these conditions,we want to say must instead of something else, e.g. "will probably." What then is the source of our impulse to say must in such cases ? Is it not that in trying to conceive X acting

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on Y without resulting in Z we find that we cannot harmonize the proposition "X acts on Y and there is no Z" with our knowledge of X and Y and other things ? But this inability is an inability of our minds and not of things. Therefore, when we assert,"X acting on Y must cause Z," does not the word must really depict a feature of our minds and not of things ? Is it not the case, as Hume says, and as others say, that "as it is usual for us to transfer our own feelings to the objects on which they are dependent,we attach the internal sentiment to the external objects"?[12]

Now although it is true that our inability to conceive X acting on Y without Z is the occasion for our asserting that X acting on Y must cause Z, this inability is not, in turn, autogenous. What makes us unable to conceive X acting on Y without Z is our knowledge of X and Y and other things. But knowledge is not something that colors what is known. X known is X. Hence, to say that our knowledge of X and Y and other things cannot be harmonized with the proposition that X acts on Y without causing Z is essentially the same thing as saying that the natures of X and Y and other things prevent X acting on Y without Z occurring. And to say that our knowledge of these things prevents us from conceiving X acting on Y without Z occurring is essentially to say that the inseparability of X, Y,and Z prevents our conceiving their separation.Thus when people assert, as they sometimes (not always) do, "X acting on Y must cause Z," they quite rightly do not take themselves to be depicting a state of their minds but properties of external things.For that,of course, isprecisely what they are doing,

12. Hume, Letter to Gilbert Elliot of Minto, 'The Letters of David Hume,' ed.Greig pp. 155-156. Hume is discussing causation. Although he does not mention the idea of necessity it seems clear that this is what he has in mind.

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VIEWS OF FREUD AND JUNG CONCERNING RELIGION

Y. MASIH

THE paper aims at showing that both Freud and Jung show their dissatisfaction with Western theism. However, Freud implicitly and Jung explicitly support the eastern religion of the Supreme Spirit.

Religion has both subjective and objective poles. Subjectively speaking, religion is a matter of personal experience which ordinarily uplifts and transforms a worshipper. But it is also held by most theists, belonging to the Semitic traditions specially, that the numinous experience proceeds from an encounter with a transcendent God. Religious experience, it is pointed out; does not follow simply from man's search of God, but also from God's search of and concern for man. Therefore, Semitic theists hold that there is actually an all-powerful, all-loving and wise God who has created the whole universe with a view to the emergence of man who might in due course prove himself worthy of fellowship with Him.

Linguistic analysis has attempted to show that God-statements cannot be treated as empirical. Most probably it is better to take them as psychological statments in which we say most about the person who makes the statements and least about the facts to which they refer. At least this is the view of Freud and Jung concerning religious statements. For instance, dream-statements say a lot concerning the dreamer's complexes and his unsatisfied wishes and much less about the factuality of the dream-content. Similarly, the abusing voice in a delusion expresses more of the mental state of the paranoiac than of the factuality of the abusing voice. God in the same way may be understood more of a psychical entity than a fact. For this reason western theists have ample grounds for regarding Freud and Jung as equally hostile to religion. Of course, Jung in certain quarters is not considered as a foe of religion for the simple reason that he considers religion useful for the promotion of psychological health and he also grants relative reality to religious entities. In comparison, Freud is far more uncompromising with Christian theism. But inspite of this seeming difference, in essentials there is a fundamental similarity between the two thinkers. We shall also show that their reconstruction of religious values follows the same line too. Freud's view concerning the education of man to reality is fundamentally tantamount to Jung's process of individuation in the interest of self-realization.

Freud's Iconoclasm

For Freud monotheism is the highest form of religion where God is

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worshipped as a father. Against this form of theism Freud submits the following observations:

(i) All the proofs given in favour of the existence of God are worthless [1]. Yet the disproportionately intense holding of the groundless belief shows that it is irrational, illusory and neurotic.

(ii) But even a neurotic fear or hope is based on some historical event. Here the historical fact is that God in every case is modelled on the physical father of one's infancy [2]. This can be thus briefly stated.

In the period of infantile helplessness the father is looked upon as a protector against all the unknown dangers of the environment. Even at the adult stage man continues to have the same feeling of helplessness in the face of natural catastrophes and social inequalities. Naturally the infantile image of the protector father pops up from the unconscious and gets projected on to the Father of the Heavens.

(iii) The ontogenetic history of God as an infantile imago of one's Physical father is greatly reinforced by its phylogenetic origin. According to Freud, following the lead of Darwin, in the cradle of civilization man lived in small hordes. Each horde consisted of a number of females presided by a single male. Naturally men as sons had a great deal of admiration for and they sought identification with this primaeval father of the primitive horde. Yet they had hate of him because of their rivalry for the females of the horde.

(iv) God therefore has been patterned on the imago of the physical father of one's individual and racial infancy and is characterised by love and hate of Him. The hate of the beloved and admired father engenders a sense of guilt from which a theist never escapes. Man, according to Freud, has to propitiate this illusory Heavenly Father by his acts of worship, sacrifice and rituals. A priesthood, all down the ages, has perpetuated this tradition by means of forced education of every human generation. Hence, Freud concludes that religion is mere infantilism and God is as illusory as dream-images are. The sooner this mass-illusion disappears, according to Freud; the better it is for the human race.

Jung's Psychologism And Relativism

According to Jung, an individual in the first half of life adapts himself to the outer environment and in doing this evolves an appropriate *persona*. But inspite of being successful in his conscious adjustment to his biological and socio-economic needs of life, very often a gifted individual, usually after the age of forty, begins to lose interest in his erstwhile pursuits. He is caught up as if by a sort of divine restlessness for a new meaning in life. According to Jung, the latent unconscious is beginning to exert its influence on the individual for coming to terms with it. Some individuals go far and some halt on the way after going a little distance only. But any successful sojourn into the unconscious bri-

1 Furture of an Illusion-pp. 49 ff.
2 An Autographical Study-p. 134.

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ngs life and light and to that extent he is said to have religious experience.

According to Jung there are four stages of religious or individual development. The four stages remain subordinate to the sovereign drive in each man by virtue of which he becomes a complete whole by adjusting to the outer environment and by becoming conscious of his unconscious demands. This holistic process is called 'individuation'. At each stage there is an archetypal symbol which one encounters in one's dreams, visions and phantasies. At each stage the individual has to assimilate it by avoiding to fall into its grip. A successful assimilation means that a large tract of the unconscious region has been brought into conscious control, and, correspondingly the libidinal energy hitherto locked up is placed at the disposal of the individual for adjustment. Hence, a successful adjustment to the unconscious archetypes expands and enriches and energises the personality with the result that he braces himself for a further ascent towards the unconscious demands.

The four stages of individuation are SHADOWS, ANIMA-ANIMUS, MANA PERSONALITIES and MANDALA-EXPERIENCE. By assimilating his shadows, the individual conquers the dark and evil side of his psyche. In the same way a successful encounter with anima-animus takes an individual beyond the attraction of sex. The stage of mana-personalities is the typical stage of theism and polytheism in which an individual gets the vision of a god, a prophet or a wise man. Such an experience whenever occurs shakes him from the very depth of his being and is likely to transform him more or less permanently. A vast majority of mortals remain satisfied with the vision. However, a few rare souls dare to proceed further towards mandala-experience. At the last stage the gods are left behind. At this stage one gets the archetypes of a cross, a circle, a trishula, a bowl and so on. This gives one the feeling of attaining a full-orbed self. Here the journey ends. In one sense, at every stage the 'self' is actualized because the self is the centre of one's total psyche which comprises both the Cs and Ucs. A successful assimilation of even the shadows results in reaching a higher centre than that of persona and to that extent the self of the individual is realized. Though this self-realization may be the highest for an individual with a low mentality, yet others with higher mentation have to proceed much further. However, the mandala-experience is the highest and the ultimate process of self-realization.

Religious Experience As A Psychic Fact

First, Jung holds that the Ucs is the seat of religion. This is clear from the fact that a divine vision occurs mostly in dreams which certainly proceed from the Ucs[3]. Again, Shadows, Anima-Animus etc., are all products of the primordial and collective unconscious. Any encounter with them means to be engaged with psychical entities. For Jung religion

3 Psychology and Reason, Collected Works, Vol. 11-pp. 18 ff.

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is a psychological fact, He states that his approach is

> "phenomenological, that is, it is concerned with occurences, events, experience, in a word, with facts. Its truth is a fact and not a judgement.Speaking for instance of the motive of the virgin birth, psychology is only concerned with the fact that there is an idea, but it is not concerned whether such an idea is true or false in any other sense."[4]

Jung clarifies this notion of the psychological fact which cannot be verified in any physical way. For instance, one may believe that at one time the river Rhine flowed backwards from its mouth to its source, in the face of empirical evidence to the contrary.

> "Beliefs of this kind are psychic facts which cannot be contested and need no proof.
>
> Religious statements are of this type. They refer without exception to things that cannot be established as physical facts. If they did not do this, they would inevitably fall into the category of the natural sciences."[5]

If religion be a matter of psychic fact, then in what manner does this view of Jung differ from that of Freud ? First, Jung holds that religion is essentially a healthy state and is rooted in the very psychological nature of man. In contrast, for Freud religion is essentially a mass neurosis of mankind. Secondly, Jung shows that the god of religion, though a psychic entity, is neither a fiction nor a subjective illusion. In his own way, he explains the objectivity of god in the following manner:

The Objectivity Of God

(a) For Jung, the psyche has as much reality as the outer world.

> "It is an almost absurd prejudice to assume that existence can only be physical. As a matter of fact, the only form of existence of which we have immediate knowledge is psychic".[6]

He goes so far as to say that not only the psyche exists, it is existence itself.

(b) Of course, the main reason of Jung's contention is that the psyche is non-individualistic and essentially racial.

> "But I am not at all convinced that the unconscious is merely my mind, because the term 'unconscious' means that I am not even conscious of it".[7]

(c) Thirdly, Jung holds the click theory, according to which God, though a psychic entity, is independent of the human will. The archetypal image in the form of a shadow or mana-personality seizes and controls the human subject, who according to Jung, is always rather its victim than its creator.[8]

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4. Ibid. p. 6
5. Answer to Job, CW, Vol. 11-p. 360. Also see p. 464
6. CW-Vol. 11-p. 12; also see p 480; CW, Vol. 16-p. 52; Modern man in search of a soul-pp. 187,219
7. CW-Vol. 11-p. 39
8. Ibid. p. 7

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"'Principalities and powers' are always with us; we have no need to create them even if we could. It is merely incumbent on us to choose the master we wish to serve, so that his service shall be our safeguard against being mastered by the 'other' whom we have not chosen*. We do not create 'God', we choose him".[9]

So God remains a 'hidden God' even for Jung, and even in his sense God reveals himself and remains objective to His worshippers. Nevertheless it remains true that the most subjective here is the most objective and the most objective can never go beyond the psyche.

(d) Again, Jung suggests that the idea of God is objective in the Kantian sense according to which a dream that all man dream and must forever dream is not a dream but a reality. Hence that is objective which is more or less universally accepted.

"It(the idea of God)is *psychologically* true in as much as it exists. Psychological existence is subjective in so far as an idea occurs in only one individual. But it is objective in so far as it is established by a society.....by a *consensus gentium*".[10]

But even a psychological process is correlated with some physicalistic event. For instance, a tooth-ache is certainly psychological, but is rooted in some physiological correlate. In the case of tooth-ache we can refer to the inflammed gums or a cavity in a tooth. So even God-experience must have some ontological basis in reference to which it is felt. Jung does think of this possibility. He, however, brushes aside any discussion concerning the extrapsychic reality of God on the ground that the problem is not for psychology but for metaphysics to decide.

".....When (as a psychologist) I speak of 'God', I am speaking of a psychological image. Similarly, the 'self' is a psychological image of human wholeness, and it also is of something transcendental .....Psychology deals with these images only in so far as they come under our experience....."[11]

(e) Lastly, the 'truth' of religion is sought to be established by Jung on purely pragmatic and therapeutic grounds.

"I may allow myself only one criterion for the validity of my interpretation of the dream.....and this is that it works".[12]

Again, he continues :

"If something which seems to me an error shows itself to be more effective than a truth, then I must first follow up the error,for in it lie power and life which I lose if I hold to what seems to me true",[13]

From the above-mentioned statements of Jung, it is clear that he regards theistic entities and theological utterances of theism to be merely

9. Ibid. p. 87
* This will be called a 'demoniac possession'.
10. Ibid-p. 6
11. In a letter to Rev. V. White, 'God and the Unconscious'-pp. 256-7
12. Modern man in search of a soul-p. 72, also see p. 74; Vide Psychological Reflections-p. 251 (Kegan Paul. 1953)
13. Modern Man-p. 277, also V. White. 'God and the Unconscious', p. xv

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psychological. This position of Jung is as much anti-theistic as of Freud. In addition to this Jung maintains the non-absoluteness of Christianity, for he adheres to the relativity of all kinds of religious claims. The religious relativity follows from the fact that an individual belongs to various attitudinal and functional types and mental dimensions. Hence, no one religious recipe can satisfy all. What is meat to one is poison to another.

> "The more deeply we penetrate the nature of the psyche, the more the conviction grows upon us that the diversity, the multidimensionality of human nature requires the greatest variety of standpoints and methods in order to satisfy the variety of psychic dispositions".[14]

For Jung therefore God can just as well mean Yahweh, Allah, Zeus, Shiva, or Huitzilopochtli [15] and each one of them is true to the person who believes in any one or more of them.

> "I am firmly convinced that a vast number of people belong to the fold of the Catholic Church and nowhere else, because they are most suitably housed there. I am as much persuaded of this as of the fact, which I have myself observed, that a primitive religion is better suited to primitive people than Christianity, which is so incomprehensible to them and so foreign to their blood that they can only ape it in a disgusting way.+ I believe, too, that there must be protestants against the Catholic Church,and also protestants against Protestantism—for the manifestations of the spirit are truly wondrous, and as varied as creation itself."[16]

Not only Jung rejects the Christian claim to the unique and eternal truth, but he most emphatically holds that in the last stage of religious experience which is called Mandala-experience Gods disappear altogether[17]. So when the fullness of religious experience dawns, the theistic religion of Christ, Allah, or Shiva all disappears.

Hence, Jung's views are no less anti-theistic than those of Freud. Further, as theism is considered to be the only possible form of religion, so both Jung and Freud are taken to be opposed to religion. Of course, the views of Freud are far more extreme than those of Jung. Freud looks upon religion as a powerful obstacle in the way of intellectual, moral and social development of the human race.[18] and he pleads for its speedy disappearance.[19] For Freud religion is a harmful illusion.

> "The whole thing is so patently infantile, so incongruous with reality, that to one whose attitude to humanity is friendly it is painful to think that the great majority of mortals will never be able to rise above this view of life."[20]

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14. CW, Vol 16-p. 9 also see p. 71
15. Vol. 11-p. 303
16. M.M. S.S.-p.282; see also pp. 136-7
17. CW. Vol. 11-pp. 95ff
18. New Introductory Lectures-pp. 210f also FI-pp. 72, 74
19. FI-pp. 75-76, 86
20. Civilization and its discontents-p. 23

+ Essays on Contemporary Events-p. 21 This is also the view of Radhakrishnan who does not favour conversion.

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For Jung every type of religion is psychologically useful and metaphysically speaking has relative truth in it.

The Religion Of Self-Culture

It is a trite observation that every negation implies an affirmation. True, Jung and Freud do not support western theism. But their rejection is based on some underlying positive view of religion. For Jung the most important form of religion has been practised for countless ages by the Indians. This may be called the religion of the Supreme Spirit. It consists in becoming aware of one's powers and capacities and in realizing them. It is essentially a matter of self-culture and psychologically considered, the religious experience expands the personality and contributes to personal peace and happiness. For Jung religion is largely a subjective affair of an individual[21] and the experience is self-authenticating.

> "Religious experience is absolute; it cannot be disputed. You can only say that you have never had such an experience, whereupon your opponent will reply : 'Sorry, I have'. And there your discussion will come to an end. No matter what the world thinks about religious experience, the one who has it possesses a great treasure, a thing that has become for him a source of life, meaning and beauty, and that has given a new splendour to the world and to mankind. He has *pistis* and peace. Where is the criterion by which you could say that such a life is not legitimate, that such an experience is not valid, and that such *pistis* is mere illusion ?"[22]

The above view of religion is mostly eastern, as Jung himself admits. According to him, the East bases itself upon the 'psychic reality'[23] and commends this attitude to the West[24]. Most probably this does not require any special mention since Jung clearly acknowledges this debt of the East with regard to his theory of self-realisation and the relativity of Gods. Again, like the Vedantins Jung makes a distinction between God-image and the Absolute God[25] and this corresponds to the distinction of the Nirguna and Saguna Brahman. Hence, Jung rejects Christian theism in favour of the religion of Self-realisation.

What about Freud ? Freud too teaches a religion of reason as distinguished from a religion of repressed instincts. None was better acquainted than Freud concerning the feebleness of human intellect in relation to the overwhelming might of passions. But he believes that reason is a power too[26]. The voice of reason may be feeble, but in the long run it makes itself heard.

> "The primacy of the intellect certainly lies in the far, far, but still probably not infinite, distance".[27]

21. Hans Schaer, 'Religion and the cure of souls in Jung's psychology'-p. 98.
22. CW Vol. 11-p. 105
23. Ibid-p: 481
24. Ibld -p. 483f
25. Hans Schaer, Ibid-p. 155
26. Inhibition, Symptoms and Anxiety-pp. 28-29
27. Future of an illusion-p, 93

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The intellect freed from the trammels of instincts, according to Freud, will enable men to be truly educated to reality and this would lead to 'the brotherhood of man and the reduction of suffering'. [28] The life dominated by reason.

> "would prove to be the strongest unifying force among men, and would prepare the way for further unifications".[29]

Life regulated by reason will be free from ecstasy, exhiliration and psychological intoxication. Man educated to reality will realize his helplessness and utter insignificance in the workings of nature. But he will learn to endure things with patience, without self-pity and illusion. Man will learn to submit himself to the inevitable. This is what Freud found in Leonardo.

> "The sentences which contain the deep wisdom of his last years breathe the resignation of the man who submits himself to the laws of nature and expects no alleviation from the kindness or grace of God"[30]

Later, Freud admired this spirit of resignation to the inevitable in the case of his father too.

> "My father knew that he was dying, did not speak about it and retained his composure to the end"[31].

Freud practised the same spirit of resignation when his own end approached him, Jones describes the last scene thus :

> "On September 19, I was sent for to say good-bye to him and called him by name as he dozed. He opened his eyes, recognized me and waved his hand, then dropping it with a highly expressive gesture that conveyed a wealth of meaning, greetings, farewell, resignation... there was no emotionalisim or self-pity, only reality....an impressive and unforgettable scene" [32].

It is for the readers to judge whether such an attitude is religious or not. One thing is certain that this is what the Stoics attempted to achieve and what Spinoza taught and practised as the intellectual love of God. It is essentially a life beyond joys and sorrows and a life of non-attachment which a Jivanmukta or a Nirvanist lives. Hence, Freud too taught a religion of self-culture.

Thus, we conclude that both Jung and Freud have demolished theism in order to make room for a religion of self culture. We trust that a linguistic analysis will reveal self-culture as the true meaning of religious statements.

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28. Future of an illusion-p. 93
29. A philosophy of life, in 'Essays In Philosophy., Edited by H. Peterson-p. 352
30. Leonardo da Vinci-p. 106 (Kegan Paul, 1952)
31. Letters to Fliess-p. 276
32. Sigmund Freud. Vol. III-p. 262

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WHAT IS SUBJECTIVITY–
An existentialistic interpretation

BASANT KUMAR LAL

I think that the basic meaning that the traditional philosophers have given to the term subjective is wrong. The 'subject', according to them, is more or less an idea-an essence. But there is an inherent difficulty in conceiving the subject in that manner. An idea does not exist, it is an adjectival always in need of a substantive with which it has to be attached. Now, if the subject becomes an idea, it loses its substantive character. Therefore the subject is the existing subject and not the idea-subject or the thinking subject. The traditionalists do not realize this, and therefore they fail to make a distinction between 'subjectivism' and 'subjectivity'.

To be able to appreciate this let us examine the meaning of the term 'subject' itself. The subject is something different from the object, the object is an entity of which the subject has an awareness. The object is the 'known' and the subject is the 'knower'; this means that 'man' is the subject because he is the knower. Moreover, the subject is he who thinks, but man alone can think; thought, in fact, is his monopoly. This also shows that man is the subject. This is the most obvious meaning of the term 'subject', because a stone or a plant or an animal is never described as a subject. Subjectivity therefore must be a fact of the life of the individual man.

We can arrive at the same conclusion in a different way also. No body would deny that the basic fact of the universe is 'Existence'. But what is existence ? It is not to be a block of wood or a mass of rock. To exist means to exist with the full consciousness of existence. Sartre says, 'Man is indeed a project.....man is before all else something which propels itself towards a future and is aware that it is doing so.[1] In fact even he is not existent to begin with; to begin with he is nothing; "man will only attain existence when he is what he proposes to be".[2] Now if in the true sense of the term 'existence' man alone is existent and if subject means man, then subjectivity must have some direct relationship with the existing man. In that case it will be free from the charge of subjectivism also because subjectivism creeps into thought only when the centre of thinking is the 'idea man' and not the 'existent man'.

It is clear, now that I am trying to give an existentialistic meaning to subjectivity. For this it would be necessary to examine the views of

1. Sartre--'Existentialism and Humanism' P. 28
2. Ibid-28

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Kierkegaard and Sartre who have thought much upon this problem. Both of them agree in saying that subjectivity can be understood only by relating it to the existent man; the difference between the two is that whereas Kierkegaard relates it to God, Sartre keeps it confined to man.

Kierkegaard says, Truth is Subjectivity"[3]. This might give us the impression that subjectivity is a more fundamental and simpler fact than truth and that truth can be grasped only by relating it to subjectivity.[4] But Kierkegaard takes them almost as identical expressions and explains them together.

It must first be realized that Kierkegaard makes a distinction between the thinking ego and the existing ego. Truth can never be grasped by the former. "Reality can never be conceived"[5] If the thinking ego gives some idea of reality it is a thought-reality and not the actual reality. Truth can never be made an object of inspection. In order to grasp truth one must feel it, one must live it. "I do not know truth except when it becomes life in me."[6] The objective or the conceptual approach makes a distinction between the subject and the object. But we can never know truth by separating ourselves from it, or by artificially creating a division between ourselves and truth; in order to grasp it we must relate ourselves to it. That is what is meant by the 'existential saying' that truth is not a matter of understanding, but of existing;—and that is subjectivity.

This needs a further clarification. If truth can be grasped only by living by existing, then we can say that truth is inwardness. It is not, then thrown down to us from nowhere, it is not pitted against our consciousness from unknown regions, it is felt, lived, inwardly realized. It needs an intensity of feeling to realize it. Therefore it is inwardness and therefore it is subjectivity.

Kierkegaard has tried to define truth in the following manner—"an objective uncertainty held fast in an appropiation-process of the most passionate inwardness is the truth"[7] I shall try to illustrate it with one of the most favourite examples of Kierkegaard-God. As the definition suggests, the subject, in its attempt at grasping truth, will objectively get only uncertainty and not the truth. This uncertainty will rouse in him an intense inwardness, a deep passion—a strong feeling; and truth will be grasped only when the objective uncertainty is made inward by the intense feeling. for example, I contemplate on nature in order to find God. All the evidences that I gather in its support together with the evidences against its existence excite in me an anxiety-an objective uncertainty. This is no knowledge of God. But this is the very reason why deep feelings are

3. Kierkegaard-Concluding Unscientific Postscript--Chapter 2
4. In the C.U.P. he first explains as to what is being subjective and in the next section he explains truth and subjectivity.
5. Kierkegaard--Journal-54
6. Kierkegaard-'Training in Christianity'-47
7. Concluding unscientific Post-Script-182

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roused in me and the inwardness becomes as intense as it is. This inwardness would ultimately give me a realization of God.Thus, this inwardness or subjectivity is capable of giving us truth, in fact it itself is the truth.

That subjectivity is this inwardness can be shown to be a fact in a different way also. A direct and objective relationship between one spiritual being and another or between one individual man and God is unthinkable. If such a relationship is assumed to be possible, it means that one of the parties has ceased to be a spirit. Truth is not accepted at-once or directly, the individual man must first realize it in his inwardness and then communicate.

Thus we see that subjectivity, for Kierkegaard, is the inwardness of the individual man. He does not suggest that the world should be patterned in accordance with this inwardness, that would have been subjecctivism. He says that the individual man would realize every thing by his inwardness, by intense passion and feeling, by being subjective.

Had Kierkegaard stopped here, his poition would not have been very different from the atheistic existentialists. But he does not stop here. For him God is not merely an illustration of subjectivity; God is the core of his principle of subjectivity. James Collins,a reputed American scholar on Kierkegaard says,—"in attempting to go beyond the epistemological dilemma between Idealism,and Empiricim, he gave a moral and religious meaning to subjectivity.[8] Kierkegaard relates subjectivity to truth, and according to him truth must be ethico-religious. Perhaps he has a reason for saying this. Subjectivity centres round man. Man alone is God-conscious. No other creature ever cocerns itself with or even cares for God. This difference appears to Kierkgaard as significant, and he atonce relates subjectivity to God,he atonce comes to the conclusion that Man's subjecivity is his inwardness with respect to ethico-religious life. This makes him feel that the problem of God and Truth is a 'life problem' and that therefore it is useless to attempt to prove God. His existence, thus, can only be realized,it can not be proved.That is why he says that,'Faith is the highest form of subjectivity"[9]. H.V. Martin points out that according to Kierkegaard "God only exists for an existing man"[10]—in his subjectivity. "when an existing individual has not got faith, God is not".[11] Thus we can conclude that according to Kierkegaard subjectivity is man's inwardness in relation to God and religious life.

Even though Kierkegaard description of subjectivity, as outlined above, contains important elements of truth, it can not be accepted as entirely valid because of certain deviations that he claims unconsiously made from his originally declared thesis. Firstly, although theoretically he claims that subjectivity has to circle round man, actually he

8. James Collins-The Mind of Kierkegaard-141
9. Concluding unscientific Post-script-118
10. Kierkegaard. the meloncholy Dane by H.V, Martin-47
11. Journal-605

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makes it revolve round God. I have indicated earlier the possible reason for this—it is so perhaps because God—consciousness is a peculiarity of man alone. But that is no reason why emphasis should shift from Man to God. Man is in the possession of so many other peculiarities also—they should only be used as illustrations, they can not be the definition of subjectivity. Secondly, such an analysis of subjectivity would ultimately make it once again an idea. The moment we transcend man's individual inwardness and relate it to God, the danger is that this inwardness would also become an idea. I accept that Kierkegaard tries his best to emphasise upon the existential nature of this inwardness—upon the actual inner subjectivity of the existing individual, but that the introduction of God into this scheme does create the possibility of a change of the existen tial character of subjectivity into an ideal or existentialistic character—can not be denied.

Now let us examine Sartre's views on subjectivity. As I have pointed out previously Sartre links subjectivity directly with existing man. He has to do this because he does not believe in God. In a scheme of things where man is the centre of all thinking nothing should be interpreted in terms of a belief in God. Moreover, belief in God means to belive in a permanent possibillty of all explanations and thereby to save oneself from the trouble of explaining things in terms of existing facts. Sartre claims that subjectivity should be pure and therefore he makes his start with one presupposition—that God does not exist. He has to make that presupposition : for, so long as God is maintained, man would throw all responsibilities on Him and would do nothing to discover himself.

Now "if God does not exist, there is atleast one being whose existence comes before its essence, a being which exists before it can be defined by any conception of it[12]. There is no God and therefore there is no human nature that has been preconceived or pre-determined. As such initially man is nothing, but he propels himself towards a future, man attains existence only when he becomes what he proposes to become. Now it can be safely said that that man is his own subjective life—his subjectivity. He himself is making himself, he will become only that which he has decided for himself to become. That is his subjectivity. "Man is indeed a project which possesses a subjective life instead of being a kind of mass or a fungus or a couli flower."[13]

If we examine the above assertion of Sartre we find that it has certain implications : Firstly it implies freedom, secondly it implies that there is a responsibility on man's shoulders and thirdly it implies that man can never go beyond human subjectivity. These three explain subjectivity clearly. I shall try to explain them.

The moment we accept that man makes himself or that man is whatever he wills himself to be, we accept also that man is free. For not being

12. Existentialism and Humanism-28
13. Ibid-28

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determined by a previously given essence, man is free and exists only to the exent he creates himself. That is why Sartre says "Man is cordemned to be free."[14] Man's freedom, therefore, is one of the main characteristics of man's subjectivity.In this subjective life—in his existence, he is aware of his freedom.

This freedom carries with it a responsibility. The consciousness of freedom"betrays it self by the double sense of anguish and responsibility.[15] As I am free, I am responsible for everything—"as deeplly responsible for the war as if I had declared it myself.[16] This responsibility should not be understood in its usual sense. This also, like everything else, is inexplicable and nauseating, and yet it is something which man is somehow carrying and is conscious of in his subjectivity.Its peculiarity is that man feels that this responsibility is not merely a responsibility to oneself, it is a responsibility to o hers also. In freely creating myself I am aware, in my subjectivity, that I am creating the man that I want to be and therefore the man that I would want others to be also. In doing anything I fix up almost an ideal for others.As such,our responsibility concerns mankind as a whole."In fashioning myself I fashion man."[17]

The third characterstic of subjectivity, which is by far the the most fundamental and which gives value to the other two characters, is that man can never pass beyond human subjectivity. When Sartre talks about freedom and responsibility, he does not treat them in an objective manner. He says that every man has a feeling of this sort—that all these are aspects of his inner life, he can not help having these feelings. Every individual will have these feelings in his own way, and he must have these. His life,his existence, therefore, is nothing but his subjectivity,

It is only in this sense that Sartrian important expressions like anguish, nausea, abondonment, despair, anxiety, become significant. For example, what is anguish ? It is an illustration of man's subjectivity.Man is always aware of his deep responsibilities specially because his decisions involve the whole of humanity. This consciousness, combined with the consciousness of the fact that there is no God as a permanent excuse for every lapse on the part of man,will create in his subjective life-an anguish. P. Foulqui, in trying to explain Sartre's anguish, says,"to be sure he has good reason for anguish, especially when we consider that in making his own choice he is legislating for the whole world.[18] Stern illustrating from the various novels of Sartre, has very ably tried to show that this subjectivity of the existent individual is the real individual and that anguish, nausea etc are aspects of this subjectivity.[19] Thus, according to Sartre subjectivity is the man—the living existent man. Apart from subjectivity man is not.

14. Being and Nothingness 515
15. Ibid-515
16. Ibid-641
17. Existentialism and Humanism-30
18 Boulquies existentialist philosophy-72
19.Stern's-Sartre, his philosophy and Psychoanalysis-Chapter III

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Sartre arrives at the same conclusions in a different way also on the basis of a psychological analysis of man- What for example, is man's original project ? Freud say, "Libido, a love-principle, a sex urge".Sartre has illustrated his psychology with abandant examples of sex,but he does not agree with Freud in saying that man's fundamental choice is sex. He says that man's original project is a project of existence—that it is subjectivity. Love or sex might be one of the most convenient illustrations of subjectivity, but man is not sex, he is subjectivity. I shall try to illustrate it with the help of two Sartrian examples.Why do we not like to be seen in the state of nudity ? Why should persons of the same sex feel ashamed in undressing even in the presence of other persons of the same sex? Body symbolizes objectivity without defence and individuals are ashamed because, in the state of nudity.they are not being seen in their true perspective of subjectivity. "To dress oneself means to negate the object character of our body—to claim the right to see without being seen, the right to be mere subject"[20]—Let us,now take the example of love.If love meant a desire to possess the partner's body, its satisfaction would have been quite easy. But it is not so. Even if I possess the partner's body, I am still alone. Therefore,the lover does not want to possess the object of his love in the way in which any body, for example. possesses a stick. He wants to possess it as a subject—as a living freedom; in that case even the partner's body would become identical with partner's freedom and "in thus touching the body the lover would be touching the other self's subjectivity".[21] Thus, these examples of Sartre show that according to him Man's existence is nothing but subjectivity.

If we compare Sartre's position with Kierkegaard's we find that Sartre's subjectivity and Kierkegaard's inwardness are not very different-atleast till they are elaborated. For Kierkegaard as well as for Sartre subjectivity is man's inner life. But both corrupt subjectivity when they try to determine its dimensions. Kierkegaard elaborated it in terms of God and Sartre, also, tried to measure the dimensions of subjectivity and in doing so defeated the whole purpose itself. In trying to concretise subjectivity he almost universalises it. He talks of subjectivity and yet he tries to fix up a course in which every individual subjectivity has to develop. Freedom, responsibility, anguish, anxiety nausea and all other similar expressions in spite of Sartre's best efforts tend to be universal. He says that everybody is free and yet he adds that everybody must have an anguish. He says that every body acts in accordance with his own choice and yet he adds that every one must have a feeling of responsibility. In his ethics he says that everybody sets up his course of action by individual choice and yet, almost like Kant, he says that every individual faces the question, 'what would happen if everybody does the same' ? I do not suggest that Sartre has actually universalised these or that convenient concepts of these expressions can be made. His effort for maintaining the in-

20. Stern-Sartre, his Philosophy and Psychoanalysis 126
21. Being and Nothingness-463

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dividuality of subjectivity is admirable, but I submit that the scope of this confusion is very much there. Why should this confusion be allowed to grow around subjectivity—especially when we are conscious of it from beforehand ? Let us, therefore, freely and unreservedly keep subjectivity as pure subjectivity. We can do it, and we can do it merely by stopping deliberations at elaborating subjectivity.Subjectivity is subjectivity and hence can not be elaborated in terms of any universal significances. We can finally stop at the statement that man's existence is subjectivity and just that. There is no logical inconsistency in it. I can very legitimately say that subjectivity is the basic fact of every man's life. Whatever man does—whatever decisions he takes,which others might followor which they might not follow is a decision of his individual subjectivity, and therefore taken in his own way. I shall try to illustrate my point of view with the help of one example. There is a man—'A'. What is his subjectivity ? Let us suppose that he has a particular view with regard to marriage and married life. His view is a direct result of the type of life that he has led and of the experiences that he has been able to gather. The circumstances in which he was born,the environment through which he grew up, his family traditions, the types of associations that he made and the conjugal life that he has been leading—all these are his experiences, all these constitute important aspects of his life. He broods over them in his inner life, forms his views, has a conviction that his views are right and goes even to the extent of advising others accordingly. Is this not a subjective existence—a life being lived inwardly ? Others might not agree with him again because they have their own inner lives,because they have to think for themselves in order to arrive at a decision. One peculiarity of this is that he has a strange conviction about the truthfulness of his beliefs; while advising others he would talk with a profoundity which only the seers of truth can command. This conviction is born out of his subjectivity. At a particular moment an individual is nothing but an organization of a number of such views and therefore nothing but subjectivity. Why can't two individuals be exactly alike ? Why must even the twins have their differences ? That is so because man is nothing but subjectivity.

Now, we must stop. Any step ahead of this would be going against facts and would take away from subjectivity its basic character. I admit that such a view is almost an individualistic view of man. But that is a fact—a psychological fact. This individualism, however,does not suggest selfishness; a man may become an utilitarian, but he would do so only after taking a decision in his inner life, only after being propelled, so to say, by his subjectivity. Such a view is not anthropomorphism also, because this view does not give a metaphysical scheme of the universe with man as its only inhabitant. It is a view on man and therefore the question of anthropomorphism does not arise at all. Therefore I conclude that subjectivtiy is the life of the existent individual man; Subjectivity is the man.

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EDUCATION, SCIENCE AND SOCIAL COMPLEXITY

HENRY WINTHROP

The Dilemma

THE world in this, the seventh decade of the twentieth century, is providing a more and more difficult milieu for the average man to adjust to. It is becoming increasingly questionable whether John Doe is in a position to grapple with the changes produced in his own life by the artifacts of his own creation. New physical inventions, new social forms, new social legislation, new cultural themes, new devices of trade and sovereignty—these and much else that is novel, interact in ways which modern man could hardly have presaged. One after another national and international crises and catastrophes well up as consequences of the haphazard way in which man has planned his own ecology. These are tinkered with likewise in some haphazard fashion and a few years pass and the cure is found to have been worse than the social disease, itself. The ferment of change produced by man's own institutional innovations creates unforeseen complexities which he, himself, finds it difficult to understand. Yet without an understanding of this increasing social complexity it will be difficult for modern man to set his house in order.

Almost all of the growing social complexity of our time is the result of a large number of continuously operating factors whose weight in producing our modern Pandora's Box of troubles is increasing all the time. No catalogue of these factors can pretend to be complete but among the weightier ones are a few which merit our attention. I shall make the effort at this point to state these as I see them, without elaboration or exposition. [1] The impact of science, technology and invention on our lives. [2]. The invention of new institutions and the passage of new social legislation which attempt to deal with such impacts by cushioning the initial dislocation they produce. [3]. The changes in the trade complementarity between nations as a result of different endowments in resources which have shifted their status from potentially exploitable, to actually utilizable, as the result of new and commercially feasible processes of technology. [4]. Changes in population in relation to actually tapped resources and to locally existing attitudes towards work, place and people all of which help to determine whether an increase in GNP per capita is feasible within a given area. [5]. The rapidity with which local forms of education succeed or fail to inculcate respect for and the appreciation and use of scientific thought-

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ways and the scientific method and attitude, all of which are so necessary for understanding, analyzing and changing the undesirable aspects of the human condition. [6]. The inability of intellectuals who have any influence upon centers of power and privilege to make clear the social contexts for which the two great stances towards life—objectivism and existentialism—are most appropriate and their inability to produce on any large scale, either of these significant attitudes among populations which are in transition from the old to the new. [7]. The lack of firm techniques for forecasting the social consequences of large-scale, social decision-making, chiefly because no group of decision-makers can control or predict new social factors or, as the economist likes to phrase it, new **exogenous variables** which may become part of the ongoing social picture in the short-run following the decision-making.

There are several factors sufficiently unique to merit separate statement. They are unique in that they are more relevant to the impasse created by modern, social complexity than the previous seven mentioned. Among these I would list the following. [8]. The breakdowns in social communication created by the **adminisitrative distance** inherent in bureaucracy and the resulting impossibility of any decision-maker or group of decision-makers being able to obtain an accurate picture of the total flow relations of all forms of social activity and their consequences, which will yield a responsible basis for administrative judgment applicable over wide geographical areas. [9]. The absence of any official corps of practical thinkers whose task is to examine technical inventions and research findings in all disciplines, for possible utilization of socially beneficial discoveries which would not be commercially profitable. [10]. The limited and marginal use in social and industrial planning, of the techniques now available for a revolution in social and industrial organization and expectations, namely, techniques in such fields as cybernetics, data and information processing technologies, computer and simulation techniques, and the newer methods of social, industrial and economic analysis, such as industrial location analysis, operations research, input-output analysis and linear programming techniques. [11]. The lack of any vigorous body of thinking devoted to the analysis of the requirements of potential, Western, decentralized, intentional communities, that is, thinking which will reject a retreat from the modern age and refuse to set the clock back but will aim, instead, at decentralized, intentional communities that propose to take advantage of modern science and technology, the revolution of rising expectations, the accelerating growth rate of modern knowledge in all fields, innovations in education and proposed forms of social pluralism—all this without sacrificing the best element of the democration tradition, namely, a balance between freedom, authority, social responsibility and individuality. [12]. The absence of almost all effort to reestablish genuine face-to-face situations among social atoms lost amidst our current social and industrial complexes, so as to achieve a sense of orga-

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nic relatedness to the modern residential community (not metropolis) which is only possible where such communities are of manageable size. This clearly can be done only where social activities and social returns are to human scale and this is likely to be achieved only when the citizen can be made to feel a sense of participation in community development, community choice of values, etc., rather than made to feel that he or she is a **social atom** interchangeable with other social atoms.

As I have already remarked, it is beyond the power of any man, no matter how erudite and perceptive, to begin to give a complete picture of the factors which are basically responsible for the increasing social complexity of our age. I do believe, however, that the factors cited here are certainly among those most central to the production of that social complexity of which we are today distinctly aware.

The world as a whole but, even more significantly, each national community, could profit considerably if it possessed a good measure of the social complexity which its citizenry faced and within which social complexity those same citizens were called upon to discuss, debate and vote upon issues and problems which represented continual social and political strain. Considering that current forms of democracy, in addition to the vote, extend to the citizen the privilege of making use of such devices as the initiative, referendum and recall and that the body of active citizens who avail themselves of these devices do so only in a context where disagreement has been reached either in the **understanding** or **interpretation** of the pressing issues and problems of the community or in the matter of their proper solution, an understanding of the complexity of the issues to be faced would be helpful on several counts. First, it would give the serious and mature citizen some idea of the homework he had to do before he could participate intelligently in the democratic process. Second, if the social complexity of the democratic milieu in which we had to grovern ourselves were known and if there is any relationship between intellectual capacity and range of information on the one hand, and the capacity to comprehend genuinely the interrelated issues and problems within a cultural milieu of a given degree of social complexity, on the other hand, an advantge is gained. This advantage lies in the fact that we can know in advance that percentage of the citizenery can meaningfully participate in the democratic process because they are in fact able to grasp the bioecological and institutional realities of their daily existence. Where social welfare is both measurable and capable of being either maximized or optimized, as has been ably demonstrated by Rothenberg [15]., **an index of social complexity,** as it were, would be of maximum help in trying to achieve such maximum or optimum welfare. It would furnish us with some nation of the number of citizens who could responsibly and mutually be expected to be able to put their heads together not only to deal intelligently with the issues faced by the body politic but also to understand the factors which generate the grave problems

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before us today—factors such as the twelve we have so briefly mentioned already.

Unfortunately no sociologist has as yet dedicated himself, so far as I know,to the construction of such an **index of social complexity.** It is to be understood, of course, that such an index would have to be some sort of **composite measure.** Operational definitions of complexity would have to be furnished for each separate **type** of social phenomenon,social process or social difficulty which it was felt **consensually** would have to be included in the composite.These definitions would vary with the context involved, the techniques for measuring the different types of complexity involved would likewise vary and the **weights** attached to the separate component measures of complexity entering into the composite index would also vary. Methods for determining these weights and for properly aggregating the component measures most judiciously and usefully, would present a separate set of problems. But considerations such as these are methodological difficulties in **principle** only, far from insuperable, and do not differ in any way from similar considerations which have entered into other types of social measurement. Nor is it to be denied that more than one type of index of this nature could in principle, be constructed. Once constructed,the fruitfulness of such an index in connection with the possible uses we have emphasized above, can be exploited so as to determine the extent to which the citizen **can truly participate meaningfully in the democratic process.**

Let the reader imagine that such a reliable index has already been developed.Then for one proper and significant use of this index we need to make only one assumption,namely,that for some time to come the distribution of human intelligence is likely to remain what it is today. This assumes a frequency distribution of intelligence quotients which run roughly from zero to some figure in the neighborhood of 200. If there is a relationship between intelligence and the degree of social complexity which may be grasped, that is to say, if the degree of social complexity which is to be understood depends upon a minimum,critical IQ level,then it becomes possible **at any time** to determine the absolute numbers and percentage of the total, eligible, voting population which is **theoretically** disfranchised from the possibility of intelligent participation in the democratic process or, at least, from intelligent participation in the solution of a given issue. This theoretical disfranchisement in terms of intellectual qualifications says nothing, of course, either about the willingness of the citizen to participate or his good intentions and altruistic stance towards his fellow citizens and their problems. This predicted percentage disfranchisement rests on the fact that there would be little difficulty in establishing empirically a positive correlation between a critically needed minimum IQ and measures of social complexity for any given issue or problem. Such a correlation would clearly justify the assertion that any community which arrives at the consensus conviction that its problems

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can properly be grasped and dealt with only by those endowed with a given,minimum critical IQ or better,is equally in a position to assert that those who fall below this minimum cannot adequately participate meaningfully in democratic processes and problems. The presence of a critical minimum implies that the further below this critical minimum an individual's intellectual capacity falls, the less adequate he or she is to deal with the social complexity of modern life.

The Consequences

Let us now suppose that one or more indices of social complexity have been constructed and made available to any community, democratic or otherwise. In the light of the institutional and technological realities of modern society and extrapolating recent trends into the future—a not unreasonable procedure in this context—what is likely to be the nature of the mathematical curve describing the change of such an index with time? I venture to suggest that the expected growth curve will not be linear but exponential in nature. This is obviously equivalent to asserting that, for any arbitrary time interval of measurement, the increases in social complexity will, themselves, be getting larger and larger in successive units of the time interval chosen for measurement. This is a reasonable expectation since it is recognized that knowledge in general is now doubling every ten years and that equal, if not greater, rates of acceleration are occurring just for science and technology alone. If we assume that the complexity of our social issues and problems will be proportional to these growth rates—since the periods between the discovery and application of new knowledge are now growing smaller with the passage of time—we can expect the difficulties which attend the average man's efforts to wrestle with the concerns of his time, to be aggravated. Inasmuch as the effects of the applications of new science and technology tend to destabilize already achieved social equilibria and inasmuch as political, social and legal institutional changes are instituted to recapture such lost equilibria—albeit on a different basis—we would expect an understanding of proposed new measures for restoring equilibrium, to be more difficult to attain. This, of course, is only another way of saying that the issues and problems with which we shall have to deal will grow more complex with the passing of time.

However, it is not to be expected that the change in an index of social complexity will be directly proportional to the changes in the rates of acceleration of new knowledge. Human effort to restore lost equilibria will tend to simplify the effects of the impact of new knowledge but the simplification achieved will rarely leave the complexity of any problem exactly the same as it was before. To some degree it will have grown more complex. All of these considerations can then be summed up by saying that in any society which permits an element of decision and choice for the average citizen—and clearly enough this is the major pristine ideal of democracy—we can expect that it will become more and more

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difficult for the citizen to understand the problems and issues on which he is expected to exercise that choice. This will have to be true if our assumption is sound that the social complexity of our lives will increase with the passage of time, regardless of whether a trend line for an index of social complexity is exponential or not. A *fortiori* this is a reasonable assumption if the present do-nothing attitude continues, concerning the growing difficulty of comprehending social change.

We must then relate human intellectual capacity to the growing social complexity of this not-so-distant human ecology. The phrase "intellectual capacity" can mean different things to different people but I am using it here to refer to the well-known **intelligence quotient.** This is not because I believe that no other operational definition of this concept can be given which is superior to the concept of the IQ. Rather it is because no other has been given so that the IQ is simply the best, even if quite crude, measure, to date of intellectual capacity. Using the IQ then as a rough measure of intellectual capacity we require **only one assumption in order to relate measures of IQ to an index of social complexity** which we shall hereinafter refer to as the ISC. That assumption is this : **any problem or issue of a given degree of social complexity requires in principle a critical, minimum IQ for its complete comprehension.** This is certainly the case for some traditional subject matter in modern education, e. g., plane geometry, latin or chemistry, and the evidence is substantial in this connection. The difficulties which students at or below a given IQ level have in these subjects, are due essentially to the difficulty inherent in the subject matter, itself, and this will be true even when such material is presented by excellent teachers using **optimum** pedagogical methods. In practise, a critical minimum required for given difficult subject matter, will be found to vary slightly, but this variation really reflects a deficiency of the test yardstick rather than an invalidity of our underlying assumption. That assumption really asserts that there is a one-to-one correspondence between a given level of complexity of subject matter, where that complexity is accurately measurable, and a minimum IQ needed to deal with that level of complexity, where the IQ is accurately measurable. Those familiar with the nature of intelligence testing theory and construction know that the practical difficulty of assigning a fixed IQ to any single individual is due to variation in results. This variation arises both from the fact that different tests measure somewhat different things and the same test given many times has inescapable error variance. For reasons such as these, we have to think of a minimum, critical IQ as an average of several values over a small range. In spite of such variation our assumption is sufficiently heuristic for both practical as well as theoretical purposes. In the light then of this assumption, the relation between the IQ and the ISC can be brought out via Figures 1(a) through 1 (e). Although these figures oversimplify the relationship between IQ and the ISC—a relationship which must be emphasized for a participant democracy—they

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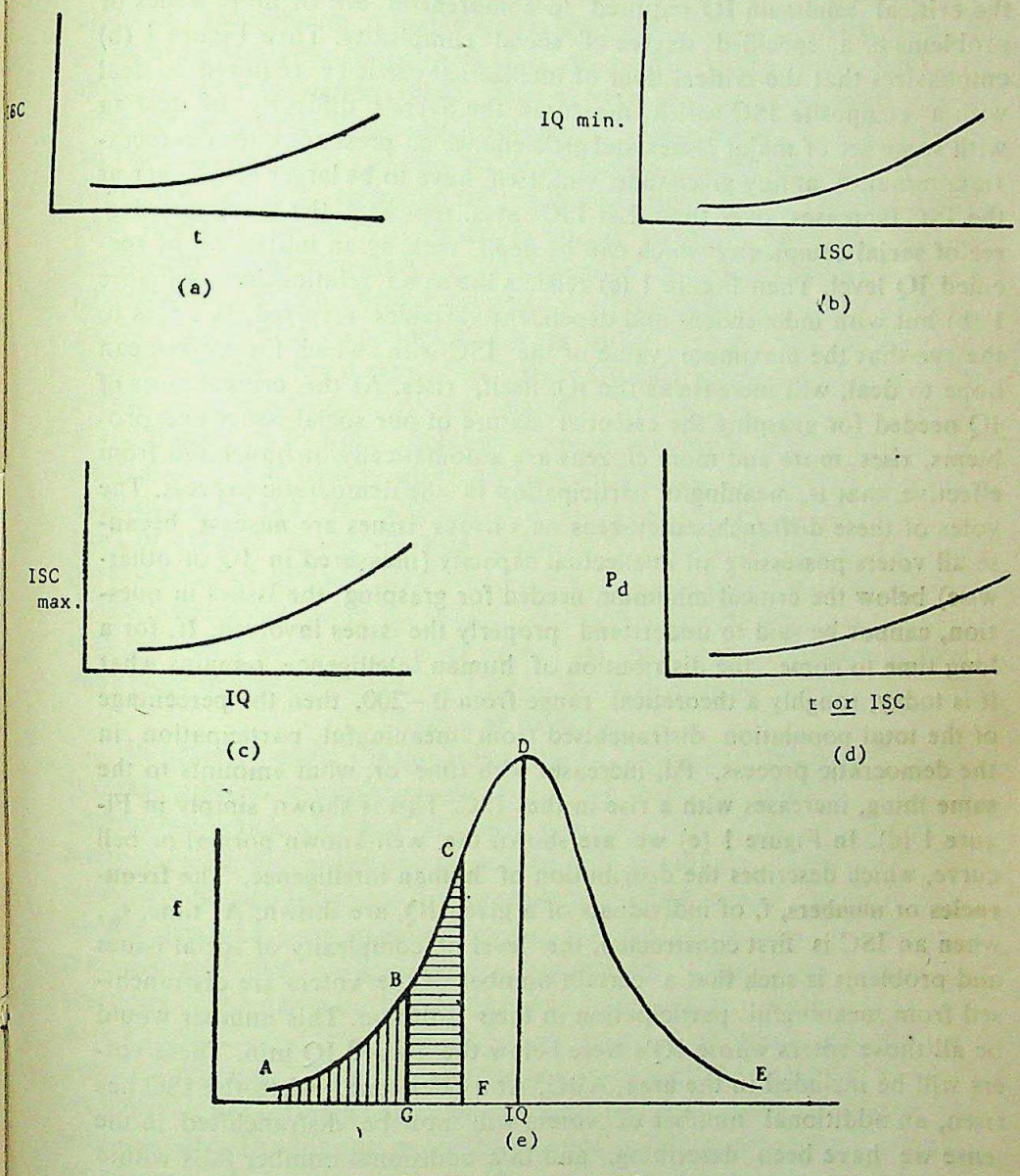


Figure 1. Diagrammatic representation of the relationships among such variables as the intelligence quotient, the index of social complexity, the degree of political disfranchisement and the passage of time.

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do bring out the essential considerations involved.

Figure 1 (a) emphasizes, of course, the fact that the values of the ISC can be expected to increase with time. Let IQ min. designate the **the critical minimum IQ** required to comprehend one or more issues or problems of a specified degree of social complexity. Then Figure 1 (b) emphasizes that the **critical floor** of intellectual capacity required to deal with a **composite** ISC which measures the overall difficulty of dealing with some set of major issues and problems which press upon the democratic community at any given time, will,itself, have to be larger and larger as the ISC increases over time. Let ISC max. represent the **maximum degree of social complexity** which can be dealt with by an individual of specified IQ level. Then Figure 1 (c) reflects the same relationship as Figure 1 (b) but with independent and dependent variables reversed. It states to the eye that the maximum value of the ISC with which the citizen can hope to deal, will increase as the IQ, itself, rises. As the critical floor of IQ needed for grasping the essential nature of our social issues and problems, rises, more and more citizens are automatically disfranchised from effective, that is, meaningful participation in the democratic process. The votes of these disfranchised citizens on various issues are **miscast** because all voters possessing an intellectual capacity (measured in IQ or otherwise) below the critical minimum needed for grasping the issues in question, cannot be said to understand properly the issues involved. If, for a long time to come, the distribution of human intelligence remains what it is today, roughly a theoretical range from 0—200, then the percentage of the total population disfranchised from meaningful participation in the democratic process, Pd, increases with time or, what amounts to the same thing, increases with a rise in the ISC. This is shown simply in Figure 1 (d). In Figure 1 (e) we are shown the well-known normal or bell curve, which describes the distribution of human intelligence. The **frequencies or numbers, f,** of individuals of a given IQ, are shown. At time, t_0, when an ISC is first constructed, the level of complexity of social issues and problems is such that a certain number of the voters are disfranchised from meaningful participation in their solution. This number would be all those voters whose IQ's were below the needed IQ min. These voters will be included in the area, ABG. At a later time, when the ISC has risen, an additional number of voters will now be disfranchised in the sense we have been describing, and this additional number falls within the area, GBCF. The total number who will have been disfranchised by this time will fall, of course, under the area, ACF.

Clearly enough if the ISC were to increase with time, theoretically a larger and larger percentage of our population would fail to participate intelligently in the democratic process. Long before this could happen there would be enough popular revulsion over the political and civic bewilderment which followed increasing complexity, to create a demand that something be done about it. Quite obviously it would be absurd to

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allow the process of disfranchisement to go to completion. The point at which this revulsion would set in is, of course, unpredictable. One can venture the guess, however, that it is likely to occur, when the decisions of controllers in a highly centralized body politic, cannot be made clear to an electorate which put them into office in the first place. This, itself, is likely to happen when there are too few intermediary human channels to provide the effective volume of communication which would be required to convey, if only in oversimplified, dramatic and popular form, the complex nature of the problems faced by the citizen. Social and political instability, I think, is bound to result when the ratio of competent decision-makers to controllees in the community-at-large, is too small to provide effective translation of the decision-making process. There is no current sociological theory which will provide us with any ideas as to what the magnitude of such critical ratios would have to be before destabilization occurred. There is likewise no type of research along these lines in either sociology or politcal science, that is to say, no effort to arrive at such ratios in community studies. This may be because community breakdown in the sense of disfranchisement has never as yet been of concern. It may likewise be due to the possibility that community breakdowns of this political type have not as yet occurred. Such breakdowns apparently lie in the future. But even though such breakdowns may only be a threat in the near future, the importance of trying to prevent them before they occur is, I think, beyond question.

Types of Solution

In order to avoid the impasse to the functioning of democracy, which increasing social complexity threatens, we have to consider possible alternatives which will head off political meaningless. There are probably many avenues which democracy will be able to take to avoid the dilemma of well-nigh universal disfranchisement which would result if man were to allow his own social ecology to become increasingly more complex. I should like to discuss only a few of these alternatives here. All solutions of the dilemma will be either of a long-term nature or short-term nature. Inasmuch as the long-term type of solution will always appear "impractical" to men who have no sense of the urgency of the problem we are trying to describe, we shall not deal with that type of solution here. The long-term solution is one which assumes that the degree of political simplification open to a civilized, democratic community is limited in the long run and that, for this reason, whatever measures are taken will have to be novel and non-gradualistic in nature.

Furthermore, since it is long-haired in nature it would be regarded by "practical" men who wish to concern themselves only with familiar possibilities, as out of the question. The long-term solution is at present only a technical possibility. I am referring to techniques for raising the mean IQ of a population through genetic controls and by the same type of biological control or guidance improve whatever hereditary aptitudes

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can be definitely shown to be related to improved data-processing on the part of human beings. It is conceivable that such techniques may become established over the next few hundred or few thousand years, provided required changes in current moral outlook occur that will permit the exploitation of these technical possibilities among human beings. Clearly a population possessing a considerable number of individuals with an IQ of 170 or higher, may be able to deal with the increasing social complexity which future human communities face. This is a point sharply emphasized by Platt[12] in a recent article which has aroused wide interest.

Optimists in this connection are not rare. Rostand [14], who does not apparently believe in the reality of the nightmare possibilities envisaged by Huxley [5,6] in two famous volumes, is a biologist whose restrained enthusiasm in this connection is easily discernible. The paleontologist, Simpson [16], is another firm believer in the social need for genetic improvement and control, in relation to the increasing social complexity of modern life. Even so cautious a scientist as Darlington [3] takes a clear position which indicates optimism in the use of biological controls. This is most evident in his own words.

> "...modern governments take less care for posterity than did their predecessors in antiquity. Governments which provide us with education have forgotten that only our parents can provide us with the ability to profit by it. There is indeed much evidence of a genetic component in the survival of nations. The nation which takes most serious thought for its own genetical future is, therefore, most likely to have a future." (pp. 8-9)

There are many other figures, too numerous to mention here, who advocate the long-term solution to the problem of increasing social complexity because they really believe it is the only practical one fundamentally.

I do not, however, wish to convert the mention of long-term possibilities for dealing with increasing social complexity in the modern world, into an argument over the feasibility or lack of it, which is inherent in any form of biological optimism. So controversial a matter should properly be left to the biologists. My point in mentioning it in the present context is simply to emphasize that it is a real alternative. Once implemented it will mean that man is controlling his own evolution sufficiently to produce beings who, no matter how complex may be the human ecology which they have created for themselves, will be able to understand and control it. In such an eventuality the **democratic sense of community** would become feasible for all time or, to put the matter more temperately, for a very long time to come.

There is always the possibility, of course, that the ISC may reach a value such that a critical ratio for instability sets in well before social and moral attitudes become sympathetic towards the idea of man controlling his own evolution. Should this occur any discussion of what I have here called the long-term solution, is meaningless. There is also the

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possibility that the ISC can reach a magnitude which is well beyond the data-processing capacity of the best existing human intelligence. Such an eventuality does not, however seem likely in the face of modern developments.Computer and data-processing equipment which act as sub-assembly aids to man's own capacity to deal with complex relationships,make it rather unlikely that the highly intelligent will ever be faced with the prospect of a frustrating limit to the degree of comprehensible social complexity which they must face.

The preceding considerations represent the more focal points which we have chosen to emphasise connection with some of the possible long-term solutions to the problems of the present and the foreseeable future.These problems arise as a result of the gap between the average level of intelligence in the body politic and the degree of social complexity towards which most of the basic issues of our time are moving.As we have already remarked, the long-term solution is of little concern to contemporary thinkers, statesmen, educators and institutional innovators, all of whom recognize the crisis which is created by the gap just mentioned. Well-intentioned publics of this sort recognize the urgency of the democratic crisis,to the extent that this crisis is deepened by the relative disfranchisement of the average citizen from the information and the skills which he needs in order to wrestle properly with contemporary affairs and exercise a fruitful influence over them. Such publics will therefore insist on more practical,short-term solutions whose effects can be visible in one or two generations.

The short-term solutions needed should be of such a nature that the average serious citizen who wishes to understand our modern difficulties and who is willing to wrestle with them, will be able to make use of certain skills, information, and techniques of analysis all of which will be well within the comprehension and educability of individuals of average intellectual capacity or better. Such skills, information and techniques will presumably enable the average citizen to deal with increasing social complexity. Essentially such techniques enable citizens of average and better than average ability, to use their natural aptitudes optimally. In fact, the methods we have in mind have value precisely because they will enable most of us to operate much more efficiently than we do now, regardless of the measureable and assignable levels of intellectual capacity under which we must function. It is therefore extremely important to discuss such a set of proposed short-term solutions to the problem of grappling successfully with social complexity in a modern democracy.

The Short-Term Solutions

The variety of short-term solutions which are available are less dramatic but some of these too would be likely to meet with resistance and misunderstanding. The first of these of interest would be the formation of an **IQ oligocracy** which, of course, is not to be confused with an oligocracy of intellectuals. This would be equivalent to allowing only

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high IQ's, properly trained and educated for their tasks, to get into positions of policy-making, governmental power and administrative execution of such policies. What we envisage is a screening procedure by which large numbers of individuals of high IQ, broad and deep range of information and special aptitudes, would be selected for these positions after years of appropriate training. The screening devices would be of course, in addition to years of training, a psychological battery of relevant tests. In effect this would be equivalent to **euthenic selection** of individuals fitted by ability and training to deal with the increasing social complexities of our time. The empty forms of democracy would be adhered to only in the sense that the citizen casts his vote for competitors who seek political responsibility and power, all of whom have been drawn by the screening process just described. If we assume character disinterestedness and social benevolence in such candidates, we have a pool of talent which would probably be epuipped to deal with community affairs, regardless of the magnitude of the ISC. This solution simply ignores the unprepared voter and holds him unfit to participate meaningfully in the democratic process. In effect, the results of such a novel solution have been lampooned by Michael Young ([18]) in a mock-sociological description of a future Britain operating under just such a policy. Young, however, does not assume a fund of social altruism among the elect but instead sets the expression of superior intellectual ability in the same "dog eat dog" atmosphere of status-seeking, prestige and power, which are *leit-motifs* in the world of today, Members of his "meritocracy" which, in Young's parlance, refers to the high IQ's selected for administration and policy-making, are primed by the some motivations that exist throughout most of the world today, particularly in the West. They are interested in status-seeking, job prestige and influence and they hope to take care of number one via the existing rat-race by the same methods of jockeying for power with which we are chiefly familiar. As a result Young, looking back on British history over the period 1870-2033, describes in a mock serious vein, a United Kingdom that got rid of class differences based on hereditary nobility, mercantile influence or sheer political advantage, only to wind up with a society in crisis, a society deeply conscious of caste, albeit caste based upon IQ.

Clearly enough, unless a selection and screening procedure put equal weight upon character, disinterestedness and social benevolence, a mere high IQ would be a necessary but certainly an insufficient condition. As someone has put it in another context "Any dope can have a high IQ." An appropriate selection procedure would also have to make use of devices, based upon a combination of tests, interviews, case histories of candidates and situational probing of their dispositions, resourcefulness, fellow-feeling and other important characteristics, which would ensure a different type of motivational pattern. The meritocratic pattern described by Young leads to a psychological separatism which, as a cure for democra-

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tic mobocracy, is worse than the disease. A motivational pattern which aimed to help the individual achieve what Maslow (8) calls "self-actualization", which sought of find new forms of a sense of community and which brought most human beings closer to the pursuit of non-material and cultural goals rather than bogging them down chiefly with economic and prestige-seeking concerns, would be more to the point. If individuals who were brought to the top in such a society not only possessed very high intellectual capacity but also the motivational pattern we have just described, this joint play of factors would come much closer to giving us a ruling elite who would be well adapted from every point of view, to dealing with the increasing social complexity of our time.

A second short-term technique, sound in principle but which would be almost certain to arouse grass-roots resistance and would be almost certain to be regarded as psychologically and financially unworkable, rests on a recognition of the existence of individual differences. This hallowed principle has found acceptance in education, in industry, in personnel selection in all fields and in the idealism of political and social credos. However, it has never become a working principle in social and political life. Here a frontiersman psychology prevails in which one man is as good as another and by extension any man's social and political opinions as good as those of any other man. If we translate the fact of individual differences into political terms, however, one of its consequences would be the recognition that man's votes are of unequal merit precisely because they have unequal understanding of the issues on which they cast their votes. How then could we establish this inequality of understanding and, once established, how could we reflect it politically through our recognition of the fact of individual differences.

Inequality of political understanding could, clearly enough, be established on the basis of an Issues Test. A test of this sort would seek to determine several things. Among these, however, would surely be the determination of how much of the range of information relevant to contemporary issues, was part and parcel of the prospective voter's intellectual baggage. It would, of course, also test the analytic powers of the voter to comprehend the many facets of each individual issue and would probe the extent of the voter's familiarity with an understanding of the nature of various alternatives proposed for dealing with the problems to be faced by the body politic. I do not want to deal here with how such a test would be constructed and with how one would settle upon a passing score. In principle these do not at all present any real problems by virtue of the existence of a professional body of lore respecting test contruction theory. Rather I wish to emphasise the principle that a democracy growing increasingly complex would be justified in preventing the casting of meaningless votes, defined as those which otherwise might have been cast if failure to pass an Issues Test had not blocked them. Some forms of democracy, as these are constituted at present, recognize

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the right of a democratic polity to with-hold the privilege of voting from certain citizens who cannot pass a literacy test. An Issues Test, however, would be an even more mature extension of the principle of "civic fitness" and is, at the same time, a more realistic criterion for separating the politically competent from the incompetent. The use of such a test is not aimed at permanent, political disfranchisement. The use of such a test allows the citizen to participate democratically in community issues at one time, if he passes it, and bars him at another time, if he fails to do so. It aims, in a sense, to screen out the political minutemen from the total, available body of voters, in any political campaign of major social significance. Such flexibility is clearly an asset. The greatest virtue of an Issues Test is that those who pass it constitute, as it were, the politically anointed. Regardless of the outcome of elections or of votes on referenda and similar matters, we are assured that those who voted knew what the voting was all about at the time. Division of opinion and mistakes in judgment can still occur among members of such a voting bloc. There is no procedure for eliminating human fallibility. Such division of opinion however, and such mistakes in judgment are likely to be minimized when they are the product of an educated vote. An electorate defined in terms of voters who passed an Issues Test would then assure a meaningful form of participation in the democratic process. The smallness of numbers in such a bloc is more than compensated for by the efficiency and intelligence of the resulting vote.

Adapting To Social Complexity Through Educational Reforms

A third type of approach concerns itself with the citizen before he becomes a voter. It looks forward to more intelligent voting by looking forward to a revamping of the process of education, itself. It assumes that perhaps average as well as superior citizens can learn to deal with the social complexities of our age, if they have been exposed to a type of education which prepares the individual to feel at home in the presence of complexity. Among educational theories and practises there are, of course, many candidates which claim fitness for such a task. Let us briefly examine some of these.

The standard, educational vice of our time is one which emphasizes routine drill, memorization and the fragmentation of the content of learning. An opporach which is most polar to this would be a Gestalt emphasis on learning. A Gestalt approach to productive and creative thinking would be most in order. We shall have to insist that methods which encourage the learner to see the total structure of a situation or problem, will probably give the greatest return on time invested. This has recently been given renewed emphasis by Bruner(1). We shall have to devise methods which encourage functional thinking in the young, encourage them to see relationships among elements of their experience instead of keeping these compartmented, and prompt the learner to develop the habit of relating anything new which he is learning to itmes and areas which are

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already matters of interest to him, In a sense we already see the fruits of this last mentioned stance in the field of operations research where the novel and original idea is frequently interdisciplinary in nature and often reflects the adequacy of a conceptual scheme, originally strictly developed for a traditional discipline, for problems in another discipline. This often happens when a deliberate effort is made to try out the intellectual fit, so to speak, an effort which has often been preceded for a long time by no suspicion that such connections could be established at all.

There are even techniques which can develop the habit of looking for relationships between items which ordinarily are not conceived of as relata. These tend to help in the discovery of the structure of events in precisely the fashion which is needed to grasp and deal with complex social variables which are connected by mathematical functions as yet unknown. They are worthwhile techniques not only for the heuristic value of the cognitive structures which we impose on the complex social realities which we are trying to grasp, but also for the attitude which they instill of being willing to face up to complexity and the perfecting of intellectual skills for dealing with these. I remember one of these well which was used by the most brilliant and versatile man I ever knew. His technique was to open up Roget's Theoaurus, close his eyes, and make a random stab with a pencil at any word on the printed page. He would then repeat this operation for another page chosen by a random flicking of the leaves. Since it is axiomatic that some relationship can be found betetween **almost any pair of words** chosen at random and very often between their referents, where these are nouns, the party of whom I speak would then force himself to find **at least one such relationship, either** between the two randomly chosen words or their respective, empirical referents. I remember vividly a demonstration he gave in which the words randomly chosen were "penny" and "gyroscope". He asked for a period of grace to discover a relationship between these two items. Then two days later a startled audience witnessed the result He had learned to flick a penny in such a way that he could make it come heads or tails at will. This neat trick was accomplished by learning to impart **precessional motion** to the tossed penny, which is, of course, the motion of the gyroscope. I lived to see many doubting and betting Thomases relieved of their extra cash, who couldn't believe their eyes and who kept looking for a counterfeit penny with two heads or two tails. This same party, of course gave several other evidences of the value of deliberately looking for relationships between terms or their referents. The point, however, is not to arouse the reader's wonder or skepticism but to reemphasize that an intellectual habit or game of this sort, established early, is one of several devices which may accustom even the average child to face up to complexity and get a "kick" as well as a sense of mastery in dealing with it.

A "relating" habit of this type may be useful in other ways. It enc-

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ourages a **holistic** emphasis in learning which later on is more than likely to lead to interdisciplinary interests and there is nothing better than interdisciplinary interests for facing up to social complexities and thinking functionally about them. Since most of the complex systems which are represented by the structure of important social issues and problems, involve **interdisciplinary variables** (a matter which is quickly recognized in the field of **operations research**), any drive for intellectual competency and mastery which encourages one to think functionally about such variables, is all to the good. If to the self-stimulated tendency to see the relationship between **apparently** remote and independent variables, is added the statistical skills years later of multivariate analysis we have laid down, I believe, the basic psychological sets for making the comprehension of social complexity somewhat easier. If teaching machines are devised in the future, which aim precisely at enabling the learner to discover functional relations between **apparently** unconnected concepts, the Gestalt, pedagogical task of imparting a sense of the congnitive structure of fields and problems, will be reinforced and emphasized. In principle there is no particular reason why teaching machines cannot be developed which aim to cultivate a **holistic** habit of thought in their users. This would be in contrast to the fragmented learning and memorization, the conformity in method and attitude, and the emphasis on the acquisition of technique which characterizes the typical, modern American classroom. Torrance ([17]) and others who are concerned with the detection and education of the creative child, have found overwhelming evidence that the atmosphere of the typical classroom is anathema to the creatively gifted. My point in mentioning this here is not a tangential one. I am trying to say that I strongly suspect that the intellectual non-conformity of the gifted consists in part of precisely these **holistic propensities** which, after mature development, result not only in the enjoyment of complexity and being comfortable in its presence but also in the happy acquisition of those attitude and skills which are needed for dealing with it.

That the effort to relate things helps at least the memory, if not the act of learning, has been attested to in another context. A highly effective memory is a very neceessary adjunct to quicker learning of the range of information required to understand the functional nature of social complexity, where we hope this latter will he made easily available to the active intellect. Bruner ([2]) has done a series of experiments which indicate quite clearly that when new material which has to be remembered is deliberately learned by trying to relate component portions of what has to be learned, the act of memorising is much superior than when a subject tries to learn the components separately without any effort to create some relation between them. In particular, **pairs of words** were presented to twelve year olds. One group was merely told to remember the pairs which they would be asked to repeat later. Others were told to remember the pairs by producing a word or idea that would tie them together in a

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way that would make sense. The results are best made clear in Bruner's own words.

"...The word pairs include such juxtapositions as 'chair-forest,' 'side-walk-square,' and the like. One can distinguish three styles of mediators, and children can be scaled in terms of their relative preference for each : generic mediation, in which a pair is tied together by a superordinate idea : 'chair and forest are both made of wood;' thematic mediation, in which the two terms are imbedded in a theme or a little story : 'the lost child sat on a chair in the middle of the forest;' and part-whole mediation, in which 'chairs are made from trees in the forest' is typical. Now the chief result, as you would predict, is that childern who provide their own mediators do best—indeed, one time through a set of thirty pairs, they recover up to 95 precent of the second words when presented with the first ones of the pairs, whereas the uninstructed children reach a maximum of less than 50 percent recovered. Also, children do best in recovering materials tied together by the form of mediator they most often use.

One can cite a myriad of findings to indicate that any organization of information that reduces the aggregate complexity of material by imbedding it into a cognitive process a person has constructed for himself will make that material more accessible for retrieval. We may say that the process of memory, looked at from the retrieval side, is also a process of problem solving : how can material be 'placed' in memory so that it can be obtained on demand?"(pp.95-6)

For Bruner and others the basic problem of human memory is not the task of increasing the storage of information. Rather it is that of finding a variety of techniques for encoding it so that information retrieval is improved. When our educational methods from kindergarten to graduate school are drastically revamped so that memorizing and learning are achieved by deilberately looking for relations among factors which are the focus of attention, then several things are likely to be achieved. The range of information immediately available to the celebrating subject is increased, the cognitive structure of complex situations is more readily perceived and functional relationships between variables are more likely to be understood. When improvements of this type occur as a result of educational innovation extended over the entire length of the educational process, then we are likely to have adult citizens who are prepared to deal with the increasing social complexity of the modern world. Such expectations may even be reasonable for what we now call the normal range of intelligence. It is not that such methods of learning and memorizing raise the individual's intellectual stature. It is more reasonable to suppose that they merely allow all levels to operate more efficiently. It is therefore no idle dream to assume that a rise in intellectual efficiency for the average man will considerably increase his "civic fitness" for dealing with social complexity.

Critics of modern mass education have tended to make four major criticisms of it. It is first of all to some degree joyless and overdisciplined by adults, particularly in the lower elementary school where the teacher's chief role seems to be that of *Magistra Ludens*. Second, it fails to

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inculcate a habit of persisting at trying to master instructional materials, so that youngsters become bored with intellectual tasks rather quickly, even when these tasks from an adult viewpoint are rather fascinating. Furthermore, the more complex the task the earlier will the boredom set in and the more readily will the learner discontinue with them. Third, theachers tend to neglect what Mayer ([9]) as called the **persistence of error** in the teaching process as conducted in U. S. schools. The student moves from one class to the next, retaining incorrect concepts of basic and significant ideas and skills, and becoming more and more confused and falling more and more behind as he moves from one class to the next. No doubt the popular demand for social promotion makes its contribution to this unhappy situation. Finally, curricula and procedures often tend to be planned unrealistically, with little relation to what can be expected from the growing youngster at his particular stage of intellectual development, conditioned as it is by maturational considerations. These four types of appraisal represent some of the more widespread criticisms which the intelligent layman reads about. There are, of course, many others. There is no doubt that an individual subjected to an educational regime of this sort cannot be expected, as an adult citizen, either to be continuously interested in the issues which face the community perennially or to exhibit that intellectual persistence and effort which the complexity of these issues demand, if one is ever to understand them properly and participate in their solution responsibly. The average adult has had the necessary habits, interest and concern thoroughly weeded out of him by a dysgenic education with faults such as those we have just mentioned.

This need not, however, continue to be the case. Interest, perseverance and independence of mind have been shown to be well encouraged by certain types of educational techniques, some new, some old. Among these are the Montessori Methods and a renascence of these has been interestingly described by Rambusch ([13]) Indirect support for some of the Montessori claims at least with respect to preschool learning, has come in recent years from the experimental researches of Moore ([10]) who is in no sense a devote of Madame Montessori. [1] Recognition of the differences in learning which go with the different, maturational stages of intellectual development, has been thoroughly confirmed by the research of Piaget ([11]) an extremely brief summary of which has been available for some time. All these types of research, I believe, suggest methods for learning and intellectual development, which will increase conceptual rigor, interest and perseverance and which hopefully will promote a lifelong habit of facing up to complex problems, wrestling with them, remai-

1 Unpublished separates on his research were made available by Dr. Moore to the present writer and these warrant a substantial optimism concerning what some of the newer educational techniques may accomplish in the way of developing a high order of learning capacity in the average child.

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ning with them and enjoying the sense of mastery and accomplishment which result from a break-through. Since these advantages hold for the average as well as the gifted learner, we can expect that much of the complexity of the issues which must be faced by adult citizens will be more amenable to treatment and more likely to win their concern, if they have had the advantages of an early education which is greatly different from the present one. The education of the future, if we are determined to have it, will show many differences from the present one—differences which reflect some of the attributes we have just mentioned.

These differences will be differences both in content and in method. Content must address itself to the requirements for understanding work, place and people in an age of science and technology, industrial organization, new types of community planning, quantitative advances in the social studies as well as a wholly new set of phenomena with which they have to deal, the impact of science and technology on human relations and a set of social problems and social issues which represent themes that are wholly new under the sun. Differences in method, however, will be almost wholly related to the learning process.The newer methods of learning and teaching aim not only to shorten the periods needed for learning given amounts of material but, even more importantly, they aim to increase conceptual understanding and rigor, interest and mastery, perseverance and independence in the learning process. Perhaps the most revolutionary development in the newer methods of learning is the teaching machine, a device which, according to most of the available reports concerning the results of its use,really promises to make the average subject use his abilities to the full, with the unexpected result of a fringe benefit years later. This fringe benefit may be an increased capacity for, and willingness to deal with, social complexity, a capacity which will be needed more and more as time goes by, if we are serious about demanding a mature, meaningful and intelligent participation in the democratic process on the part of the average citizen. Let us therefore take a look at some of the accomplishments which have been claimed for the teaching machine by most of the authorities who have attempted to evaluate its potentialities objectively. I mention these only because of their relevance for democracy's expectation that the average citizen will make the effort to understand the issues of his time and the further effort to cope with them intelligently, so that his participation in community life will not be merely "the still small voice" which it is today.

Research results tend to show that the average human being is using only a tiny portion of his abilities. Many so-called "slow learners" are found to be only the victims of poor teaching. The art of programming has reached the point at which almost all students can get 95 per cent of the answers right. This provides the interest and pleasure which are alleged to be missing from the modern classroom for many of the young. Programs are so constructed as to prevent muddled, half-baked and illo-

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gical cerebration. Thus the preparation for the conceptual rigor needed for the handling of complex matters is assured. The great social and democratic hope which resides in instruction given via this new device, is emphasized for us in the surprising finding that children with low IQ's get just about as many correct answers as do the gifted children. It is only their rate of learning which is slower. The degree to which learning time is reduced is perhaps best exemplified by reports of students doing a year's work or more in half the regular time. More able students in high school mathematics,for instance,have covered in one year a program involving axiomatic algebra, solid geometry and calculus. One anecdote reports the case of a boy who completed a semester's work in solid geometry in four days and who received a score of 100 on the final examination which covered the whole course. Shortening of the time for instruction has also been achieved in other programs, such as one covering English in a school in Manhasset,Long Island and one covering high school algebra in Nutley, New Jersey. Time-savings have been reported over a whole spectrum of material, from spelling in the lower grades and arithmetic for retarded youngsters to elementary psychology at Harvard. Results of this sort seem to indicate that we can abolish what has been called **the persistence of error** in our educational system—a gain which augurs well for the expectation that we can have adult citizens who are sufficiently well informed to face the issues of their time. The hope can we can employ such revolutionary inventions like the teaching machine to bring out fully human intellectual potentialities, so that the complex problems of democracy may be met by the citizen of the future, has perhaps been well expressed in the following quotation from **Lock** (June 5, 1962).

> "Beyond its utilitarian applications, the new movement holds out a rare new faith in the untapped abilities in every human being. For several decades, the world's leading philosophers and poets have preached of man's weakness, helplessness and despair. It has been a long time since there has been any serious talk of the perfectability—or even the improvability—of man. Now, a buoyant, busy group of psychologists and educators are refusing to set any limit on what the average human being can accomplish. If they are right,they will give this nation a big boost in what H.G. Wells called 'the race between education and catastrophe.' And they will prove to the whole world that the human race has been selling itself short."

While we are on the subject of new educational techniques which,if started early, tend to encourage the average subject to make full use of his abilities while young, and therefore hopefully continue to encourage the same sense of intellectual responsibility in the adult, let us mention some additional, important findings in this direction. We remind the reader that our concern with such an educational achievement is rooted in our conviction that only in this way can we look forward to a time in which the average citizen will find it second nature to grapple with the complexities of the social and political problems and issues germane to

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the life of the community. These problems and issues will unquestionably grow more complex with the increasing impact of science and technology on our lives. If, therefore, democracy is to work, the average citizen must participate responsibly in community decision-making and if he is to do this he must have developed intellectual habits associated with the intellectual concentration and concern needed to deal with difficult matters. These are more likely to be present if inculcated early rather than if they are treated as a realizable objective of adult education. In matters of education involving the development of intellectual skills there is such a thing as an **intellectual point of no return**, that is to say, if we allow the citizen's intellectual potentialities to atrophy during the first two decades of his life, we will have no reservoir of needed intellectual skills to draw upon when, in the course of democratic community life, he faces for the first time the intellectual responsibility of civic decision-making. Therefore, before leaving this topic of educational encouragement of native capacity for hard and continued thinking, let us mention some additional educational discoveries which promise hope in the direction of the early fostering of sustained thinking habits.

In recent years pedagogical techniques have been developed which not only arouse intellectual curiosity but make it possible for the young to perform intellectual tasks which once were felt to be within the capacity of only gifted adults. The more distinguished of these pedagogical innovations have been worked out with respect to mathematics. the field most obviously presenting maximum intellectual difficulties from a traditional point of view. Ingenious methods, for instance, of teaching high school mathematics and occasionally of teaching arithmetic in such a way as to prompt young children to discover new ways of seeing arithmetical relationships and occasionally discovering new mathematical theorems, have been developed by a series of experimental projects at various universities[2]/. A revolutionary new method of teaching mathematical known as the Cuisenaire technique, making use of colored rods of unequal length and a device called a Geo-Board for creating quick changes in geometric figures whose mathematical consequences can be immediately detected visually, have resulted in the discovery that complex portions of algebra and geometry can be learned by the very young, and that algebra can be taught before arithmetic. This technique has been described in many articles but one highly representative one is a paper published by Gattegno (4). A device known as The Psi Apparatus, developed by John and Miller (7), will yield a picture of an individual's method of working intellectually, of his efficiency in the

2/ Projects for the reform of mathematics teaching are widespread. The most active experimental groups are the University of Illinois Committee on School Mathematics and the Arithemetic Project at the same institution. the University of Maryland Mathematics Project, the Ball State, Indiana State Teachers College Experimental Mathematics Program, The Boston College mathematics Institute, and the Minnesota Laboratory for the Improvement of Secondary School mathematics.

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acquisition and handling of information in solving a problem, as well as his consistency and appropriateness of approach. It thus not only offers an early opportunity to diagnose undesirable intellectual working habits but also provides the teacher with enough information to correct them. The Psi Apparatus has been found promising with grade school children from six to ten, and may therefore encourage those intellectual stances needed to deal with complex problems, social or otherwise.

Other techniques which would probably encourage a full use of the individuals intellectual potentialities, would be the introduction of general semantics into the elementary and high school curricula. This, we believe, would tend to sharpen the analytic propensities of the average youngster fairly early. The use of visual models of social processes and social equilibria could be expected to make a significant contribution to the development of sustained thinking on complex social matters. Pictographs,pie-charts and other visual materials can often be the first steps in the presentation of complex, social structure. A host of pedagogical devices too numerous to mention here, all work in the same direction. They serve to make subjects more efficient at grasping intellectual complexity, convert the solution of a complex problem into a fascinating game and finally eventuate in habits of thought which improve the intellectual efficiency considerably of the adult who has been exposed to all such educational innovations. The net result is that various IQ levels operate more intensively, that is to say, generate more power for the cerebral plant than might otherwise be expected.

The items mentioned in the preceding two paragraphs represent only a few approaches, but these are a small sample of many techniques which are currently being developed as the result of a creative ferment in education—a ferment aimed at showing how much the intellectual potentialities of the average person have been neglected. From our point of view, once we start developing these intellectual potentialities as early as possible, we increase the possibility that the average citizen years later will be able to rise to the political demands of an increasingly complex social milieu. In terms of our social and political concerns, this is a promise which can only increase democratic morale. Such educational efforts obviously should be encouraged, for they are among those techniques which can counter the possibility of intellectual disfranchisement which an increasingly complex social environment, threatens.

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MAGIC SQUARES

Their Constructions & Uses (Part II)

N. L. BHARADWAJ

General Remarks

EVEN magic squares are mostly the magic squares of arrangements and interchanges. These interchanges help us in making arrangements which play a very important part in the construction of these magic squares. In order to understand the intricate processes to make them properly we have to deal with certain very important things connected with them. Arrangements of numbers in a series, or a chain of series, their relation to each other, in a series or a chain of series, interchanges of numbers of series or a chain of series, filled in a square, various kinds of interchanges, different methods of making interchanges are things which cannot be neglected before the actual construction of these magic squares.

Complementary Numbers and Complementary Totals

Let us explain complementary members and complementary totals with the help of concrerte examples.

(i) $7+2=9$ (ii) $3+6=9$ (iii) $4+5=9$

In the above examples $7+2$, $3+6$, $4+5$, are complementary pairs of numbers and each number of the pair completes the other to get the total 9. The number 9 in such cases is called the complementary total. 9 may have other pairs of complemantary members i.e. $1+8$, $6+3$, $0+9$. etc.So all these pairs are pairs of complementaries numbers and therir total 9 is the complementary total. It we subtract a complementary number from a complementary total we have the other complementary number, and if we add complementary numbers of any pair we get complementary total. So we come to the following conclusions—

1. If the totals of two numbers in every pair are equal the numbers are complementary.

2. If the numbers are complementary, they have equal totals.

(b) Now let us have a parental series and examine it—

1. 2. 3. 4. 5. 6. 7. 8.

Here we see that if we take—

1st number from the left and first no. from the right we get 1,8
2nd number from the left and 2nd no. from right we get 2,7
3rd „ „ „ „ „ 3rd „ „ „ „ „ 3,6
4th „ „ „ „ „ 4th „ „ „ „ „ 4,5

Here we get the same complementary nos, as in (a)m.

(c) The above series in (b) Can be broken into any number of groups, each group containing as many terms as there or houses in the row of a square.

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Thus in a square of four, we get four groups each containing four terms—No. of terms is always definite in a square. Here we get complementary nos. by cross wise method.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

	2nd & 3rd line		3rd & 4th line	
1st & 2nd Lines	1 4	2 3	5 8	6 7	9 12
	X	X	X	×	×
	5 8	6 7	9 12	10 11	13 16
	C. Total=9	C. Total=17		C. Total=25	

10 11
×
14 15
C. Total=25

In the same way 1st 3rd, or 1st and 4th and so on and so forth.

(a) Here we give another and quite a different method of finding complementary nos. It is the case of a chain of a series:—

1 2 3 4

8 7 6 5

9 10 11 12

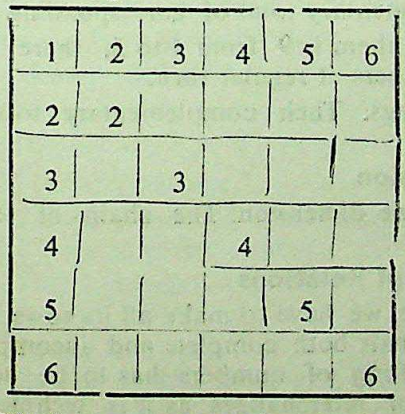
Here we have got the same compl. nos. in a very easy manner.
The C. T. O. 1st & 2nd rung 9
" " " 2nd & 3rd rung 17
" " " 3rd & 4th rung 25

Uses of a, b, c, & d Methods noted above

Now we will say something about the arrangements of the different series a. b. c. & d. noted above.....(a) is too simple to (b) Series as given in (d) above is very useful in finding compl. columns and compt. rows.

(1) Fill the parental series 1—6 in the houses of the first row. The numbers give you the position of each column and compl, nos. give you compl. columns. 1. 6, 2 5 and 3.4 are compl. column s.

Fig 22 Rows



(2) Fill the same parental series 1—6 in the houses of the first columm. The numbers give you the position of each row and compl. nos. gives

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you compl. rows 1—6, 2—5 and 3—4 are compl. rows.

Note 1 : From the above we see that compl. columns and compl. rows are equidistant from the first and last opposite sides, of columns and row respectively.

Note 2 : We see that to find the position of columns we fill the first row and to find the position of rows we fill the first columm with the parental series.

(3) If we fill a diagonal with the same series we can in one stroke find the position of rows and columms and their compl. relation.

Example—2 and 5 are compl. nos. They fall in the 2nd and 5th rows and also in the 2nd and the 5th columns. Therefore 2nd and 5th rows are complementary and 2nd and 5th columns are complementary.

General Rule :

Hence the general rule in short for all, is that rows and columms in which complementary numbers, fall are compl. columns & rows.

(c) The importance of this kind of arrangement of a series lies in this that we can get a magic square of two latent dimensions very easily.

(d) Of all the methods of finding compl. nos. discussed above the method shown in (d) is by far the most important one. Therefore we will discuss it a bit in detail. We have arranged the numbers in the manner noted on the right hand side. This kind of arrangement is called a chain of series. From 4 we have sharp turn called regular turn to the opposite direction. Similarly from 8 and 12 we have regular turns, nos.4, 5, 8, 9, and 12, 13 are called nos. at regular turns.

1	2	3	4
8	7	6	5
9	10	11	12
16	15	14	13

Nos. at Regular Turns Rungs

Parts of the chain of series namely1—4—8—5—9—12 and16—13 are called rungs. Each rung makes a complementary series with the next rung and vice versa. The coresponding numbers in any two complementary Rungs are complementry numbers and the total of complementary numbers is their complementary total. It is better to find complete totals by adding nos. at the regular turn. Examples—

In the above series—

First rung 1 2 3 4 are complementary and the
second rung 8 7 6 5 complementary total of corresponding
9, 9, 9, 9 nos. in them is 9 from 4 to 5, there is a regular turn. Numbers 4 & 5 are numbers at regular turn.

Proceed similarly with other rungs. Their complementary total is 17, 25.

A Magic Square of one dimension

This series gives us a M. Sq. of one dimension. The chains of series can be written from any side.

Relation of Houses and Kinds of Relations

In order to make a square magic, we have to make all its rows and columms and, if possible, all its diagonals both complete and incomplete magic. For that purpose mental shifting of numbers has to be accomplished. Now this mental shifting or interchanges as it is technically called, always takes place between related houses. All these related houses lie in complementary rows and complementary columns. If these hou-

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ses lie in the same row, they are horizontally related to each other.

Horizontally and Vertically Related Houses.

Obliquely Related Houses and Crossly Related Houses

If the two houses lie in the gonally opposite directions in complemen tary rows and complementary columns, they are obliquely one skewly related to each other. In other words, two houses are said to be obliquely related to each other when one is horizontally related to a third house and the other is vertically related to the same third house. It may be called verto. Horizontal relation. If two such pairs are thus obliquely related they are said to be crossly related houses. All crossly related houses lie where the complementary columns meet with complementary rows.

Fig. 23

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

Examples—Fig 23
Vertically Related
First row and sixth row
Second ,, ,, 5th ,,
Third ,, ,, 4th ,,

are complementary to each other and the opposite houses in them are vertically related to each other. 2—32, 5—35 and so on are vertically related to each other.

Horizontally Related

Similarly.....
First col. and sixth col.
Second ,, ,, 5th ,,
Third ,, ,, 4th ,,

are complementary to each other and the opposite houses in them are horizontally related to each other, 7—12, 19—24 and so on are horizontally related to each other.

Skewly Related

Houses 1 2 3 of row no. 1 are skewly related to

Houses 36 35 34 of row no. 6 r spectively.

Similarly Houses 7, 8, 9, of row no. 2 and Ho uses 30, 29, 28, of row no. Similarly we may find related houses in other cases of rows. 5 are skewly related to each other.

The skew relation of houses in columms may be shown in the same way.

Cross Relation :

In Fig. 23 House no. 1 & 36 Show skew relation. } They are together called crossly related houses
,, ,, 6—31 ,, ,, ,, }
2—35 in are cases of crossly related houses of }
5—32 }

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INTERCHANGES

(a) Individual Interchanges

Mutual change of places of numbers filled in related houses are called interchanges.

Interchanges are of four kinds—

(1) Verticle Interchanges—Here interchanges take place between the numbers filled in vertically Related houses.

(2) Horizontal Interchanges—Here interchanges take place between the numbers filled in Horizontally Related houses.

(3) Oblique Interchanges—Here interchanges take place between the the numbers filled in obliquely Related houses.

(4) Cross Interchanges—Here interchanges take place between the numbers filled in crossly Related houses.

(b) Collective Interchanges.

All the above interchanges are interchanges of single or individual numbers. We will now give a short description of their collective interchanges and different methods of performing them. All these collective interchanges are based on the circular movements round an imaginary centre or lateral turning movements round imaginary hinges,

Circular Movements

These circular movements are either flat i.e. parallel to the floor, upright i.e. perpendicular to the floor or oblique making an angle of less than 90° with the floor. All the above different kinds of circular movements can be so used as to give us collective interchanges of numbers written on a piece of paper, or a card board or a wooden board.

Lateral Turnings.

Here a board or a portion of board makes an upside down or a downside up movement, or rightside left, or left side right movement. These movements will also give us collective interchanges of numbers written as above.

We will make use of flat circular movements and lateral turnings for our purpose and leave others. They are easy and more convenient.

Examples of flat circular movements—Stone piece of a pot maker gramophone records, stone pieces of flour machines. They run parallel to the ground.

Examples of Lateral Turning—Card board covers, leaves of books, Lids of boxes, panels of windows and doors.

In this connection we may note that two lateral turnings from two dissimilar sides are equal to a circular movement for the purpose of interchange. Each turning makes Semi circle 180° in a space. A Circular movement, on the other hand makes only one semi circle i.e. 180°. One Circular movement serves the purpose of the two lateral Turnings. In the construction of Even Magic Squares, both of these movements are of utmost importance.

The followlng illustrations will make the whole thing very clear.

(a) It is a square of 4 in which a chain series arranged.

(b) Here the left half of (a) is interchanged by one half circular movement or two dissimilar Lateral turnings, as noted above—first turning is upside down & the second left side right.

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(c) Here the lower half is interchanged by one upside down turning so the face goes down and the blank back side comes up. The interchanged position is written properly.

(d) Here the face down numbers in (c) are shown in their corresponding houses in the face up position in (d).

Fig. 24

(a)

1	8	9	16
2	7	10	17
3	6	11	16
4	5	12	13

(b)

1	8	13	12
2	7	14	11
3	6	15	10
4	5	16	6

(c)

1	8	13	12
2	7	14	11

(d)

1	8	13	12
2	7	14	11
3	5	16	9
4	6	15	10

The arrangement of nos. is now complete.

A little practice will enable us to make these interchanges at sight and to dispense with this practical work.

Now we can use either the individual or the Collective method of making interchanges.

Aids—As in odd magic squares, we make use of certain aids in even magic squares also.

These aids are—

1. Directing squares.
2. Measures.
3. Helping Squares.
4. Circular Movements.
5. Straight movements.
6. Interchanges.
7. Arrangements.
8. Selection.
9. Trial.
10. A combination of any two or more of the above, aids.

Method—Helping Squares,

General Rules of filling numbers in the two helping squares for the construction of all even magic squares.

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Filling the first Helping Square

1, Fill the left Diagonal with numbers in natural order Fig. 25 or complementary position order Fig. 26.

2. Fill the same numbers in vertically related houses.

3. Remaining Houses in complementary columns are to be filled with the same complementary numbers as are already filled in two of the complementary columns i.e. with complementary numbers any way provided—

I. There is equal number of each of them in the column.

and II. in Singularly Even squares in every row at least one house which is not in a diagonal shall have its vertically related house filled with the same number as itself.

Filling the Second Helping Square

1. Fill the left diagonal with numbers in natural Fig.25 or complementary Order Fig. 26 with as much common difference as there are houses in the row of the suqare.

2 Fill the same numbers in Horizontally related Houses.

3. Remaining houses in complementary rows are to be filled with the same complementary numbers as are already filled in two of the complementary rows i.e. with complementary numbers any way provided—

I. There is equal number of each of them in the row.

and II. that if any house in a row of the first square and its vertically related house are filled with complementary numbers then the corresponding house in the row of second square and its horizontal related house must occupy the same number.

Doubly Even Rigid Magic Squares Natural order Filling

Fig, 25 (a)

1	3	2	4
4	2	3	1
4	2	3	1
1	3	2	4

+

(b)

0	12	12	0
8	4	8	8
4	8	8	4
12	0	0	12

=

(c)

1	15	14	4
12	6	7	9
8	10	11	5
13	3	2	16

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Singly Even Rigid Magic Squares Nautural Order Filling

Fig 26

(a)

1	5	4	3	2	6
6	2	4	3	5	1
6	5	3	4	2	1
1	5	3	4	2	6
6	2	3	4	5	1
1	2	4	3	5	6

+

(b)

0	30	30	0	30	0
24	6	24	24	6	6
18	18	12	12	12	18
12	12	18	1	18	12
6	24	6	6	24	24
30	0	0	30	0	30

(c)

1	35	34	3	32	6
30	8	28	27	11	7
24	23	15	16	14	19
13	17	21	22	20	18
12	26	9	10	29	25
31	2	4	33	5	36

We could fill the diagonals in complementary order instead—

Ist H. Sq. 1, 5, 3, 4, 2, 6 2nd Helping Sq. 0,24,12,18,6,34 proceed further in the same way as in fig. 26.

Constuct all higher Doubly Even M. Sq. as in Fig. 25.

" " " Singly " " " " " 26.

Construction of Magic Square of Ten (a) Helping Square

1	9	3	7	5	6	4	8	2	10
10	2	8	4	6	5	7	3	9	1
10	2	3	7	5	6	4	8	9	1
10	9	8	4	6	5	7	3	2	1
1	2	3	4	5	6	7	8	9	10
1	9	8	4	5	6	7	3	2	10
10	9	8	4	6	5	7	3	2	10
1	9	3	7	6	5	4	8	2	10
10	2	8	7	5	6	4	3	9	1
1	2	3	7	6	5	4	8	9	10

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Helping Square (b)

0	90	0	90	90	90	0	0	90	0
80	10	80	10	80	80	10	80	10	10
20	70	20	20	70	70	70	20	70	20
30	60	60	30	60	60	30	30	30	60
40	50	50	50	40	40	40	50	50	40
50	40	40	40	50	50	50	40	40	50
60	30	30	60	30	30	60	60	60	30
70	20	70	70	20	20	20	70	20	70
10	80	10	80	10	10	80	10	80	80
90	0	90	0	0	0	90	90	0	90

Magic Square (c)

1	99	3	97	95	96	4	8	92	10
90	12	88	14	86	85	17	83	19	11
30	72	23	27	75	76	74	28	79	21
40	69	68	34	66	65	37	33	32	61
41	52	53	54	45	46	47	58	59	50
51	49	48	44	55	56	57	43	42	60
70	39	38	64	36	35	65	63	62	31
71	29	73	77	26	25	24	78	22	80
20	82	18	87	15	16	84	13	89	81
91	2	93	7	6	5	94	98	9	100

Master Magic Squares Doubly Even.

Method—Helping Squares—

Rules of Arrangements—

First Helping Square

1. Fill the alternate houses in the first column with pairs of complementary numbers 1, 2, 4, 3 or

Second Helping Square

1. Fill the alternate houses in the first row with pairs of complementary numbers 0, 4, 12, 8or

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2, 4, 3, 1 or 4, 3, 1, 2 in any way you like.

2. Fill the corresponding houses of the second column with their complementary numbers.

3. Repeat the numbers in the first and second columns in all the oddth and Eventh columns respectively in the same order.

Fig. 27 (a)

1	4	1	4
2	3	2	3
4	1	4	1
3	2	3	2

4, 12, 8, 0 etc in any way you like.

2. Fill the corresponding houses of the second row with their complementary numbers.

3. Repeat the numbers in the first and Second rows in all the oddth and eventh row respectively in the same order.

(b)

0	4	12	8
12	8	0	4
0	4	12	8
12	8	0	4

(c)

1	8	13	12
14	4	2	7
4	5	16	9
15	10	3	6

There are no M.M. Squares "of Singly Even M. Squares we may here make a distinction between complementary numbers filled in the alternate houses of a column or row on the one hand and "Complementary groups filled in a column or a row" on the other. Let us take the case of a M. Sq. of 8.

(1) Complementary Groups in a row | 1 | 2 | 3 | 4 | 8 | 7 | 6 | 5 | (i)

(2) Complementary numbers in alternate houses of a row | 1 | 3 | 8 | 6 | 4 | 2 | 5 | 7 | (ii)

We can start with any one of them. The first one is easier, proper and more elegant, Fig 27 is an example which illustrates both of them. Its first column is filled with 1 2 4 3 (Two groups.) and its alternate houses are filled with complementary numbers 1 & 4, 2 & 3. Their complementary total is 5 See Figs. 33, 34, 35.

Construction of Doubly Even Magic Squares.

Method Of Cross Interchanges

We have already referred to various kinds of Interchanges and different methods of performing them. In the construction of the following Doubly Even M. Sq, we will use the cross interchanges method of a

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very quarters and subquarters simple nature.

It will be convenient to divide doubly even squares into four quarters. These quarters may again be divided into four subquarters may again be divided into four sub-quarters. The number of quarters and subquarters will always be constant i.e. four. The number of houses in them will depend on the size of squares.

How To Find The Number Of Houses.

No. of houses in a subquarter $(\text{Size})^2$

In a M. Sq. of 4 $(1\frac{1}{1})^2\ 1=1$
In a Sq, of 8 $(\frac{8}{1})^2\ 2^2=4$
In a Sq. of 12 $(\frac{12}{4})^2\ 3^2=9$

No. of houses in quarter—
=No. of houses in a subquarter $\times$ 4.

In a M. Sq. of 4 $1\times 4=4$
In a M. Sq. of 8 $4\times 4=16$
In a M. Sq. of 12 $9\times 4=36$ & so on

This division of D.E. Squares into Quarters and subquarters helps us in preparing schemes of related houses. These schemes help us in determining the positions of related houses. They easily catch our eyes and save a great deal of our valuable time and energy.

Schemes Of Related Houses

Fig. 28 Total no. of houses in Gonal and Nongonal portions is always equal.

Fig 28 (a)

g	n	n	g
n	g	g	n
n	g	g	n
g	n	n	g

(b)

g	g	n	n	n	n	g	g
g	g	n	n	n	n	g	g
n	n	g	g	g	g	n	n
n	n	g	g	g	g	n	n
n	n	g	g	g	g	n	n
n	n	g	g	g	g	n	n
g	g	n	n	n	n	g	g
g	g	n	n	n	n	g	g

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In the above schemes "g" represents houses in the gonal and 'n' represents houses in the non-gonal portions of the squares. Cross Interchanges of numbers will take place between Crossly related houses of either gonal subquarters or non-gonal subquarters resulting in two kinds of Magic Squares.

M. Sq. of 4—(a) Latent M. Sq. (b) Gonal Cross Interchanges (c) Non Gonal Cross Interchanges

Fig. 29

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

16	2	3	13
5	11	10	8
9	7	6	12
4	14	15	1

1	15	16	4
12	6	7	9
8	10	11	5
13	3	2	16

2. M. Sq. of 8— Fig 30 (a) Latent M Sq.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

(b) Gonal Cross Interchanges

46	63	3	4	5	6	58	57
56	55	11	12	13	14	50	49
17	18	46	45	44	43	23	24
25	26	38	37	36	35	31	32
33	34	30	29	28	27	39	40
41	42	22	21	20	19	47	48
16	15	51	52	53	54	10	9
8	7	59	61	61	62	2	1

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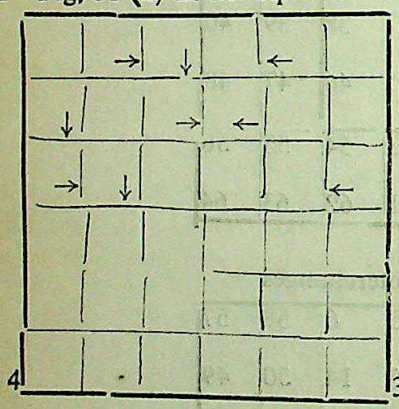
Non Gonal Cross Interchanges (c)

1	2	62	61	60	59	7	8
9	10	54	53	52	51	15	16
48	47	19	20	21	22	42	41
40	39	27	28	29	30	34	33
32	31	35	36	37	38	26	25
24	23	43	44	45	46	18	17
49	50	14	13	12	11	55	56
57	58	6	5	4	3	63	64

Singly Even Magic Squares

Method of Cross Interchanges is also applicable in the case of Singly Even Magic Squares in a limited sense. Here Interchanges are not of universal applicability. They are applicable in individual cases only. We therefore call them methods of selection. They are mere helps to memory, With their help we can reproduce these magic squares at will without under going the tedious, processes involved in making them by other processes: There may be many methods of selection for the same magic square. They are, of course, reducible to a general form. I give below an example to illustrate what I mean.

1 Fig, 31 (a) L. M. Sq. of 6 2



Parental Series (b)

1	2	3	4	5	6
7	8	9	10	11	12
13	14	15	16	17	18
19	20	21	22	23	24
25	26	27	28	29	30
31	32	33	34	35	36

M. Sq. of 6 (c)

36	5	33	4	2	31
25	29	10	9	26	12
18	20	22	21	17	13
19	14	16	15	23	24
7	11	27	28	8	30
6	32	3	34	35	1

Method of Selection applied

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Explanation—(a)

1. The square is divided into four quarters
1. Upper left quarter.
2. ,, right ,,
3. Lower ,, quarter
4. ,, left ,,

A set of 3 arrows in broken diagonals of lower left quarter faces upwards. These make a vertical interchange. The result of all these interchanges is the M. Sq. of 6 Fig. 31 (c). Note : Vacant houses in the scheme do not interchange their numbers.

2. Numbers in rel. houses of left diagonals cross interchange.
3. Numbers in related houses of right diagonal cross interchange.
4. A set of 3 arrows in broken diagonal of upper left quarter faces to the right and also.
   A set of 3 arrows in broken diagonals of upper right quarter faces to the left.
   These make a Horizontal interchange.
5. Another set of 3 arrows in broken diagonals of upper left quarter faces downards and also.

Doubly Even M. M. Squares

With the help of.....

(a) Measures, and

(b) Straight movements.

We have already learnt how to make arrangements of numbers in a square with the help of various kinds of suitable interchanges of nos. filled in related houses. We may, therefore, now proceed to construct doubly even master magic squares with the help of measures or straight movements. Fig. 24 (d) By using the numbers in the order of arrangements instead of parental order we can construct the same M. M. Square in two different ways—

(a) By measurement or

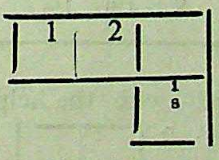
(b) By straight movement.

Let us first discuss about the size of measures and straight movements. The size of measures and straight movements depend on the size of magic squares.

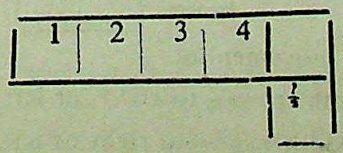
(a) The size of measures.....

(The size of measure $= \frac{\text{Size of M. Sq.}}{2} + \frac{1}{8}$

1. For a M. Sq. of $4 = \frac{4}{2} + \frac{1}{8} = 2\frac{1}{2}$



,, ,, ,, $8\frac{8}{2} + \frac{1}{4} = 4\frac{1}{2}$



So on & so forth.

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(b) The size of St. movements.....

The size of Straight movement $= \frac{\text{Size of M. Sq.}}{2} + \frac{1}{2}$

1. For M. Sq. of $4 = \frac{4}{2} = 2$ houses.
2. „ „ „ $8 = \frac{8}{2} = 4$ houses.

and so on & so forth.

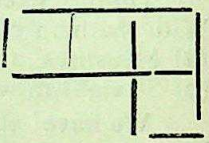
Let us now start from Fig 24 (d). It will be convenient for us to reproduce it here.

Now we have the above two different methods of making M. M. Squares from this arrangement (Fig. 32).

Fig. 32

1	8	12	12
2	7	14	11
4	5	16	9
3	6	15	10

(a) First Method—with the help of measures size of measure— $2\frac{1}{2}$



Here in Fig. 32, 18, 13, 12, are start nos.

1. 2. 4. 3. 8. 7. 5, 6, etc., are to make circuits, make free use of directing squares.

Fig. 33 Illustration

1	8	13	12		
14	11	2	7	14	
4	5	16	9	4	5
15	10	3	6	15	10
8	13	12		8	13

(b) Second Method—with the help of straight movements—size of straight movements $= \frac{3}{2} = 2$ houses



Straight movement of—

(a) Eventh rows—to right or left

or (b) Oddth rows—to right or left.

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we will here move eventh rows to the right Fig. 32

Fig. 34

1	8	13	12		
14	11	2	7	14	11
4	5	16	9		
15	10	3	6	15	10

By Calculation

We can construct bigger M. M. Squares in the same way.

Doubly Even M. Squares By Calculation.

Let us look at the following chains of series—

For a M. Sq. of 4 8 12

(1) 1 2 (2) 1 2 3 4 (3) 1 2 3 4 5 6

4 3 8 7 6 5 12 11 10 9 8 7

Every one of the above the chains of series can be divided into two groups which can be filled in columns both the groups keeping the same direction. We take for example, the second series and deal with it with the help of diagrams.

(a) (b) (c) Fig. 35 (d) Left Half Right Half

1	16	17	32	57	56	41	40
58	55	42	39	2	15	18	31
3	14	19	30	59	54	43	38
60	53	44	37	4	13	20	29
8	9	24	25	64	49	48	33
63	50	47	34	7	10	23	26
6	11	22	27	62	51	46	35
61	52	45	36	5	12	21	28

M. M. Sq. of 8

Fig. 35 (a) First Rung. It is the first rung of the chain series filled in a column as two complementary groups keeping the same upper direction. It will form the first Circuit of the M. Square (d).

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(b) Here the oddth houses of (a) are shown filled in a separate column with numbers 1, 3, 8, 6.

(c) Here the eventh houses of (a) are shown filled in a separate column with numbers 2. 4. 7. 5.

(d) It is a square of 8 divided into two halves—The left half and the right half,

The rungs of a chain series are complementary. It follows from it that the groups are also complementary in the same order. Such groups are also used in the construction of M.M. Squares.

Filling the M.M. Squares of 8.

This M. Squares will be finished in three stages. First Stage, First Rung, First Circuit.

Filling the First rung in the First Circuit.

Rules—

(a) The numbers in the oddth houses of (a)as represented in (b) are to be filled in the oddth houses of the first column of the left half of the Square (d).

(b) The number is the eventh houses of (a) as represented in (c) are to be filled in the eventh houses of the first column of the right half of the Square (d). Fig. 35 (d).

Second Stage—Other Circuits—2nd Circuit—3rd Circuit & 4th Circuit—Filling upto half the houses of the Square we have already read, in the general remarks on the Doubly even M.M. Square about complementary numbers and complementary totals in connection with different kinds of series. So far as Chain series are concerned, we know that the numbers filled in the houses of a rung are. Complementary to the numbers filled in the corresponding houses of the next consecntive rung and the sum of all these pairs of corresponding numbers are equal i.e. their totals are complementary. We have also noted that it is more convenient and proper to get our complementary totals by adding numbers at regular turns.

But the question arises as to how to find these numbers at regular turns.

Smaller & Bigger Nos.

(1) The smaller number of the two can very easily be found by multiplication table of the number giving the size of the Magic Square.

(2) The bigger one can be found by adding the common difference to the smaller number.

We take the magic square 8 to illustrate the above.....

Smaller no.	Bigger No.	Compl. Total	Circuit
$8\times1=8$	$8+1=9$	$8+9=17$	2nd circuit
$8\times2=16$	$16+1=17$	$16+17=33$	3rd ,,
$8\times3=24$	$24+1=25$	$24+45=69$	4th ,,

In the same way we can deal with other smaller and bigger Magic Squares.

Now it is very easy to fill the numbers of other rungs in other circuits. A number of every next or higher circuit is to be filled on the complementary basis of the previous circuit. By subtracting the numbers of the previous circuit from the complementary total of the two rungs or circuits we get the numbers of the next circuits.

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Examples—

Second Circuit—

Compl. Total	Previous Circuit	Next Circuit
17	1	16
17	2	15
17	3	14
17	4	13
17	8	9

and so on and so forth

So the order of numbers in this circuit is—1.16,2.15,3.14 etc.

Third Circuit—

Compl. Total	Previous Circuit	Next Circuit
33	16	17
33	15	18
33	14	9 & so on

So the order of numbers here will be 1,16,17 etc. 2.15,18. 3,14,19 etc.

Fourth Circuit—

Compl. Total	Previous Circuit	Next Circuit
49	17	32
49	18	31
49	19	30 So on

So the order of numbers here will be 1,16,17,32 etc. Fig. 35 (d)

Third Stage— Completing the Magic Square—

Of the Chain series $\left\{\begin{matrix} 1 & 2 & 3 & 4 \ldots\ldots 32 \\ 64 & 63 & 62 \ldots\ldots 34 & 33 \end{matrix}\right\}$ we have already filled the nos. of the 1st rung 1.....32 Fig. 35 (d). The remaining numbers 64, 63...33 of the second rung...The compl. nos. of these already filled—are to be filled on the compl. basis in a different and far easier way. In view of the cross interchanges of the right half and the verticle interchanges of the lower half of the square Fig. 24 it would be rather tedious to follow the processes used in the previous stages. Hence the necessity of following the easier way.

For this purpose we require a number of gonal houses as medium. This number of gonal houses depends on the size of the magic square proposed to be constructed. I therefore give below a few formulae.

1. Formula for finding the no. of gonal houses.

$$\frac{\text{Size of the Square}}{2} + 1$$

2. Formula for finding the number of gonal houses between the two complementary numbers.

$$\frac{\text{Size of the Square}}{2} - 1$$

Examples—

No. of gonal houses for a square of $4 = \frac{4}{2} + 1 = 3$

Square of $8 = \frac{8}{2} + 1 = 5$

No. of gonal houses between two complementary numbers for a

Square of $4 = \frac{4}{2} - 1 = 1$

Square of $8 = \frac{8}{2} - 1 = 3$

In filling the complementary numbers of the second rung in a circuit, it is better to proceed according to the order of number in he previous

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circuit. We may procced according as they occur in the square or as it suits our convenience. We may or may not use the directing squares.

Filling numbers from 64.....33.....

Now in above chain of series numbers at regular turn are 32+33. The complementary total of the series, therefore, is 32+33=65. From 65 we take out the complementary no. 1 and get the other complementary no. 64.

Now start from complementary no. 1, leave three gonal houses and fill the complementary no. 64. Now this complementary no. 64. occupies the houses at the junction of the 5th. Column & the 5th row, we write 64 in house no. (column 5, row 5) or (c5, r5) or similarly (5,5)—(c, r).

Now we may proceed according to the order of number 2, 3, 4 etc. or according to the numbers occurring in the Magic Square i.e. 16, 17, 32 or as we like from any number below 33.

Let us start from 2 and fill its complementary no. 63 in house (1, 6).

Let us now start from 16 and fill its complementary no 49 in house no. (6, 5).

Fill all the other houses in the same way, and at the same time go on comparing the result with fig. 35 (d) and complete the magic square.

A few words on the use of Directing Squares

It will be interesting in this connection to say something more on the use of Directing Squares. Hitherto we have used them as means of directing ousted numbers 54 to their corresponding houses in the central square. Make a reference to Fig. 6 and note how no. 7 has travelled to its corresponding house in many different ways we have said that we may or may not use directing squares. Now let us see how we can use the directing squares.

So there are two methods of reaching the desired house for filling the complementary no. of 1 already filled.

1. The direct method which we used here.
2. The indirect method through the directing squares.

Now let us explain the second method with the help of an example. Let us find the house for the complementary no. of 1 which is 64 in this case.

Now the house occupied by 1 has four corners, we have already reached its complementary no. directly through the lower right hand corner.

Now we will reach the same destination through other corners. Houses in the Central Squares only are counted. The houses in the directing squares are left un-counted.

1. We start from 1 through the upper right hand corner,reach above 16, go through 55. 22. 34 and reach 64. So we have 3 houses between 1 and 64. House in the directing squares above 16 is not counted.

2. We go to the left hand side of 58 through the left hand lower corners and reach 64 through 31. 43. 13.

3. We go to the gonal directing square through the left hand upper corner and reach 64 through 28. 46. 10. Fig. 6. Ousted no. 7.

New Circuit & Counting

In this connection we may make a distinction between a new circuit & counting. In new circuits we maintain a definite relation between stop

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nos. and start nos.In counting we cross over the numbers in the way and reach the house of the complimentary no. There is no question of corre. sponding houses here, they be filled or empty the counting goes on unchecked.—

Some important Magic Squares

Compare Fig. 27 (c)

1. Its rows are magic. 1. 8. 13. 12=34.
2. Its columns are magic. 1. 14. 4. 15.=34.
3. Its diagonals are magic. 12. 2. 5. 15.=34.
4. Its broken Diagonals are magic. 12. 14. 5. 3.=34.
   13. 7. 4. 10=34.
5. Any four contiguous numbers are magic;—
   13. 12. 2. 7, 2. 7. 9. 16, 4. 5. 15. 10. etc.are all magic Total=34.
6. Any four alternate numbers are magic, 12. 8. 9. 5, 2. 14. 15. 3, 1. 13. 16. 4 etc. are all magic. Total=34.

All the above 1 to 6 items are applicable to every one of the sixteen magic Squares composing the composite magic squares. Fig. 35,

They are also applicable to the composite magic Square itself Fig. 35.

Fig. 35 A Strange composite Magic Square.

1	8	13	12	113	120	125	124	193	200	205	204	177	184	189	188
14	11	2	7	126	123	114	119	206	203	194	199	190	187	178	183
4	5	16	9	116	117	128	121	196	197	208	201	180	181	192	185
15	10	3	6	127	122	115	118	207	202	195	198	191	186	179	182
209	216	221	220	161	168	173	172	17	24	29	28	97	104	109	108
222	219	210	215	174	171	162	167	30	27	18	23	110	107	98	103
212	213	224	217	164	165	176	169	20	21	32	25	100	101	112	10
223	218	211	214	175	170	163	166	31	26	19	22	111	106	99	102
49	56	61	60	65	72	77	76	241	248	253	252	129	136	141	140
62	59	50	55	78	75	66	71	254	251	242	247	142	139	130	135
52	53	64	57	68	69	80	73	244	245	256	249	132	133	144	137
63	58	51	54	79	74	67	70	255	250	243	246	143	138	131	134
225	232	237	236	145	152	157	156	33	40	45	44	81	88	93	92
238	235	226	231	158	155	146	151	46	43	34	39	94	91	82	87
228	229	240	233	148	149	160	153	36	37	48	41	84	85	96	89
239	234	227	230	159	154	147	150	47	42	35	38	95	90	83	86

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In Fig. 27. (c) we took individual numbers while in Fig. 35 we take individual Magic Squares. Try and verify the results as above in this case also.

A Borderd Magic Square of great interest.

We now give a bordered M Square. Fig. 36. These bordered magic squares are made by trial. They are not regular. The only regular bordered Magic Square is a Magic Square of 3. As a matter of fact all magic squares of 3, as we have already noticed are bordered magic squares.

We can remove these borders, either from with in or from without, without sporting its magic nature. The following Fig. is a Magic Sqare of 11, we will refer to it, when we come to uses of magic squares.

1. Two patent dimensions & Diagonal are Magic .Remove the borders one by one the remaining squares will still be magic.This removal may be begum either from within or from without. Without spoiling its magic nature.

2. Every border has its complementary totals and complementary totals of all the borders are equal i.e. they are complementary. 10 +112 =122. 118+4=122 Similarly 33 plus 89=122,57+65=122.

1. Opposite corners and (2) Opposite side portions of every border have complementary numbers. Their totals are=122.

See necessary Requisitions Fig. 18.

This is a very important case of a M. Square of 7.

It is an example of Deviation. Deviation from the usual method. Mark the following.

1. Start nos. 1, 8, 15, 22,29, 34, 43,
2. Stop nos. 7. 14, 21,28, 35, 42.

Here we have used two measures. As between the terms we have

Fig. 36 A Chain Series of Borders

118	20	19	18	17	10	115	114	113	121	6
120	33	28	35	36	99	93	110	93	27	2
119	30	76	40	41	74	75	77	44	92	3
117	31	79	49	50	67	68	71	43	91	5
11	32	39	66	64	57	62	56	83	90	111
12	101	37	69	59	61	63	53	85	21	110
13	97	38	70	60	65	58	52	84	25	109
14	96	80	51	72	55	54	73	42	26	108
15	34	78	82	81	48	47	45	46	88	107
16	95	94	87	86	23	24	22	29	89	106
116	102	103	104	105	112	7	8	9	1	4

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Fig. 37

1	14	20	26	32	38	44
39	45	2	8	21	27	33
28	34	40	46	3	9	15
10	16	22	35	41	47	4
48	5	11	17	23	29	42
30	36	49	6	12	18	24
19	25	31	37	43	7	13

used the master measure $2\frac{1}{2}$ i.e. $\left|\begin{array}{c|c} 1 & 2 \\ \hline & \frac{1}{2} \end{array}\right|$ and as between between the groups we have used a camel measure of three gonal houses to the opposite direction from the head of the measure. So the usual relation between the stop nos. and the start nos. is changed and we have a case of deviation from the usual method.

This method is applicable to all M. M. Squares above five.

Uses of magic squares in India.

Different magic squares are used for different purposes. Magic Square of 3, the lowest magic square of odd series, is considered to be the most auspicious of all and is used throughout the length and breadth of India by people of all classes specially the merchant classes with religious bent of mind. A casual observer can see them written on the walls above the doors of their houses and shops. The names of the three goddesses, Lakshmi the Goddess of wealth and prosperity, Sarasvati the goddess of wisdom and learning and Durga the goddess of war & defence are invariably connected with this magic square. Wealth wisely earned and zealously guarded brings about Abhudaya, prosperity and Nishreyas. Sidhi heavenly bliss. Fig. 7.C. Its symbol is Jyoti—Light.

Magic Square of 4.

Magic Square of 4 specially the divisible one Fig. 24e represents Tamas-Darkness. It can be very successfully used by persons who practice black arts. It is our every day experience that dreams generally follow light. In exceptional cases we have dreams of darkness. They are extremely troublesome. We can produce such dreams with the help of this magic square. Such dreams have a maddening result. They are just like the experiences one has in a solitary dark cell.

Magic Square of 5.

Magic Sq. of 5, specially Master Magic Square of 5 is very useful. Fig. 17 (a) (b). It is an antidote to the ill effects magic square of 4. It is the most wonderful of all the magic squares. It can cure all the nervous diseases directly and all the other diseases indirectly Such as hemicronia, madness, mania, hypochondria, toothache, Scorpian bites, false fears, hallucinations of kinds, mad dog bites etc. I would like to give below two very interesting cases of cure effected with the help of magic squares.

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Take Magic Square (b) Fig. 17. Write (Om)instad of I in the center. and kept it.

First Case of Fear of men.

A man aged about 30 came into my room with three men. He had a terrible expression of fear on his face. He began-I am very much afraid of men, my life is very miserable. I shall be very thankful to you kindly cure me.

What ! are you suffering from such fear ?

Are you afraid of all me also ?

Yes very much.

How have you come here ?

With very great difficulty. My mind has all along been oppressed with fear.

How and when do you sleep ?

I go to sleep when all have retired.

Are you afraid of animals ?

No, not at all.

What god do you worship ?

I worship Sankat Mochan "Hanuman".

Alright, I will cure you in seven days.

I asked him to bring three new pieces of cloth all coloured red to to be used as head dress, loin cloth and cover for the body.

Next day he came. I gave him the Magic Square kept for the purpose. I also gave him ashes from the sacred fire. I asked him to rise early in the morning, to have a wash in the Ganga, To put on magic squares and the red dress, besmear the ashes on the forehead and go straight to the temple and worship as usual and on his way back give one half piece to the beggar he sees first.He followed my instructions,and on the eighth day came to see me with four or five men. He was very happy to be relieved of the distressing malady. He always kept the magic square tied on the right upper arm.

Second case Aural Halucinations.

One Sunday,I went to see Shri Chandra mauli Shukla,the vice principal of the Teachers Training College. He along with his son-in-law was walking in the open. He saw me and said to his son-in-law-look here, the right man has come. He is not what he appears to be. Take him with you and show him the case. I went with him and in the way he told told me about the disease of his grand mother.I at once came to the conclusion that she was suffering,from a very severe type of Aural Hallucinations. We reached Ganga Math at Assi.

His younger grand son, aged about twenty was bitterly weeping and beating his head. The poor fellow could not understand the nature of the disease of the Lady. I gave the lady the same magic square of 5. as above. It was hung from a peg, on the wall just infront of the old lady. She was instructed to have a look of the magic square four or five times a day. After a week I again went to see Shukla Ji. He was very happy at the marvellous cure effected by the magic square. The lady did not stay at Benaras after the cure and went away straight to her own village to live among her children.

Magic Square of 6

All even magic squares are vicious and deceptive and singly even magic squares are even more treacherous by nature. They take you to the pinnacle of Glory and then throw you down with a crash. The dia-

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[illegible] is filled with numbers 1—6 or 1 to 10 as the case may be.

Now 1, 1+6=7, 7+6=13, 13+6=19, 19+6=25.

Number $25=5^2$ is a square, others 1, 7, 13, 19 are prime factors. These numbers form what is called the Back Bone of magic squares of 5. As against the Rigid magic squares, the Magic of six is all powerful. It is, however, quite useless against Master magic square of 5, because the Back Bone is elastic and can shift to any place at the will of the user. See the position of the Back Bone Figs. 16 (e) 17 (a), (b) Even the numbers of the Back Bone itself are elastic and can shift.

Bordered Magic Square Of Eleven.

Now let us study the Bordered magic square of 11 Fig. 29. This magic square is a very potent means both for offensive and defensive purposes. It will be interesting in this connection to mention that the military system of Changez Khan was based on 11. Ten men with one man as leader as the smallest unit of the army. Eleven was the lowest grade and 111, 1111 etc. were higher grades. It was this Mystic power of these numbers that made him the greatest conqueror of the world far greater than Alexander himself as the Historians have begun to say. In the centre of the magic square we have 61. From this centre or the heart as we may call it expands the Back Bone of the Magic Square of 5 as shown above. This hidden Back Bone counteracts the evil effects of the vicious magic squares of even order and carries you from ignorance to truth, from darkness to light, and from death to immortality.

Now we will give below the Magic of 11. We know that 1 is the first term and 9 the last in a Magic Square of 3.

Now Proceed as follows :—

$1\times 9+2=11.$

$12\times 9+3=111.$

$123\times 9+4=1111.$

$1234\times 9+5=11111.$

and so on and so forth upto nine. We can get bigger numbers by proceeding in the same way or simply by multiplication method 55,555, etc. Such were the military gradations of the armies of Changez Khan.

In this magic square each border protects the inner one.

A Miraculous Recovery.

I was about 11. we were living at Dharam Garh, a village in Tehsil Sunam in Patiala State my mother was dangerously ill. She was fighting against death. There was no physician at hand. We were impatiently waiting for the arrival of a Sadhu, a Sikh Monk. He came and brought with him a long thick chain of iron. He tied it round my mother's bed stead. Round the bed outside, outside the chain parallel lines were made with chalk powder. Each side consisted of 11 houses. Numbers were filled in the houses in the border. Sums of numbers filled in the opposite corners and opposite houses of opposite side portions were equal. To the amazement of all, my mother fully recovered in 11 days. The impression on my little mind was so deep that I could never forget it. It was the starting point of my interest in these wonderful tiny things.

Educational Uses.

Now-a-days magic square are being increasingly used in elementary text books of arithemetic. Of course, no methods of construction are given. Boys are to fill houses left vacant. They do by trial.

A father brought his son to me. He had a very great aversion al-

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most amounting to horror, to arithmetic. I tried the magic square method. This was very successful. He always demanded new and bigger ones. Small boys gathered round him to see and appreciate the wonders he showed them.

Exciting Hallucinations in Small Children.

All kinds of hallucinations can be produced in small children with the help of a magic square of 3. I very successfully excited aural, ocular, tactual, nasal and taste hallucinations in small children. Manytimes I tried and successfully produced nasal hallucinations in all boys of my class one by one.

Magic Hand Or Magic Wand

Write a Magic square of 3 fifteen times on the palms of your hand or a rod handkerchief or any thing you can easily carry about you. Black small rod will serve better. This is your magic hand or wand. You may not use any ink of powder, Better write with dry tip of your right hand ring finger.

Ocular Hallucination

Place your magic hand on the head of a small boy of 6 to 11 years, Move the hand from behind towards the eyes and suggest to him. Light, Light is coming, you will see light. Let his eyes remain closed all along,

When he says—Light has come—ask him to call any thing he wants to see— a dog, a cat a friend. He will be able to talk to him put questions and receive answers. If you repeat this for a number of days, you can ask him, in the middle to open his eyes, he will see the hallucination projected into the space outside.

Nasal Hallucinations

Now shut your Magic hand. Ask the boy to choose the scent he likes best, Take the Magic hand to his nose. He will be fully satisfied to have the smell of his own choice.

CURE :

You can cure pain of Scorpion bite by making passes on the seat of pain with the magic hand.

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J. KRISHNAMURTI AND DEPTH PSYCHOLOGY

C. LEYBOURNE-WHITE

I. The Changing World

MAN must know himself, the self that functions in every day life. Many voices urge, and few dispute this. With scientific knowledge extending into the nucleus of the atom, and advancing now towards outer space, it scarcely needs arguing that there should be knowledge of Man's own being; actual, and not merely theoretical, penetration. Man needs to become self-aware. Julian Huxley has also made clear that the evolutionary process, which is now focussed in Man, is a matter of developing awareness. This necessity for Man, to know himself, therefore, is also his destiny. It is his privilege and potentiality to come to a deeper and more extensive awareness of his whole environment, in the cosmos, in nature, in the social scene, in his fellows, but also deeply in himself there to discover,perhaps, the secret and source of his being. All this is widely recognised today, but what is being done about it ? What can be done about it ? Are we helpless, or have we the power of insight into ourselves, and dimly recognise this, yet fail to use the power, preferring not to see, not to be awakened to ourselves ? The challenge is immediate especially for who are concerned for the generation of tomorrow.

Our children and students will grow into a world wherein outer change is so rapid that their problems may bear little resemblance to those which teachers and parents of today have known. How can we best enable our young people to meet their own life in this world of flux ? We connot know what they may have to meet; old presumptions about trainning, out of our experiences,may no longer be vaild. Surely,the only true thing which we can do for children and students of today is to fit them to be human beings who can meet any and every new situation and challenge with complete newness of mind, fresh, free of old conclusions or decisions, which would be likely to be irrelevant. For this, they would need to be innerly free, with no burden of the past, with no knots in themselves—complexes, fears, anxieties, no fixed ideals, no vague phantasies, marks too of past influences.Indeed,we need to help the child to become a human being of a new order, free of any dead load of the past, and able to discover for himself a deep and wide comprehension of human existence and of its problems in and out side of himself.[1]

If this is true and is recognised, it brings to the teachers and to parents also, the inescapable challenge to know themselves to come to a real and deep contact with all that has hitherto remained hidden and

1 See also J. Krishnamurti, 'Comentaries on Living' 2nd Series (Gollancz—1958 & Harper 1958) on---Creative Happiness and Education· Education and Integration. What Is The True Function of a Teacher.

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unexplored in the background of their beings. For how otherwise could they help their pupils and students to be innerly free ? To teachers, recognising this, uncovering of the hidden regions of the self would be veritably the only significant way of life. They would also know that they were awakening where for long they and the majority of their fellows have lived in a purblind condition, although in all their traditions the urge to awakening was there.

II. Self Knowledge :

How then could teachers, all who are in touch with youth, or indeed all men, come to the way of such self-knowledge, or more, of that extensive and intensive awarness of the whole pageant of life around and within themselves, all the influences, personal, inherited and environmental, which are playing upon them ?

If the issue has been clearly recognised, the process of self-knowledge can become immediately activated, or more, once the intention is alive,extensive and intensive awareness can be a flame springing into life. But the intention needs first to be clear and strong. Without any dogmatic theory (the theories do not agree among themselves) about the inner functioning of the human being, each can discover the facts of himself for himself in direct perception of himself, yet in discussion and contact with others. To observe so directly, it is only necessary to be very alert so that the mind is being simply aware of itself, of its thoughts and feelings, its reactions, without the diversion, which is what it would amount to, of justifying oneself or else condemning.We can start without preliminaries on the process of self-discovery. For this, we have only to be aware of our reactions as we live, in our relationships in the whole fabric of our lives; with people, with all the things that surround and imping upon us, and with the ideals which constantly play through and dominate our lives. But this will be discussed more fully later on.

From this vital beginning of the process of self-knowledge, it is then important to be in the way of plunging deeply—to trace our reactions to the causes and influences from which they spring,and to delve into the whole root and soil in which these causes and influences are immersed.It is vital that the reality of the collective,as well as the personal, unconscious be known. The human being is not summed up by what he may consciously know himself to be; beyond and deeper than that, is the unconscious,both the personal and the collective,going deeply into the foundations of what it is to be a human being. The personal is the depositary of the personal experiences and memories; the collective is the depositary of the experiences and memories of our family of our nation,of our race,of Man himself, with vestiges still of our primordial forbear, deep in the hidden recesses of our being. All these fears, anxieties, hopes, urges, despairs, ideals,traditions,conventions,all are there and alive in our very beings today. Today we are influenced, though usually we know it not, by the heritage of the past ages in us, and by the marks of our own past experiences.

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With all this load upon us how is it possible to meet the new experiences, and challenges of the new day, except with the impress of all this old within us ? It is surely necessary, therefore, to know what we are, for the sake of the critical moment of history in which we live, but also for the sake of ourselves and our children. In general,we, and soon they, as they grow up, are confused and unhappy, torn by contradictory hopes and urges: In conflict within,even though much of it may be successfully repressed from recognition by consciousness,these hidden contents somehow find a way out,for they are loaded with energy,the energy which is our life—they find a way,often through the body,and hence the wide range of psychosomatic illness which has its root within the mind, the psyche.

III. The Mind's Working:

How then can we all understand ourselves and penetrate deeply into the very roots of the inner influences which are shaping and moving our lives ? Knowledge of certain facts about the working of our minds and beings, may help to quicken and to deepen the active process of self-knowledge.

(1) **Conscious understanding to the full:**

There must be no under-estimation of the part to be played by the conscious mind. In relation to any and every life situation, whether problem or not, it is for the conscious mind to do its utmost to explore the whole field of it, all its ramifications—to think into, feel into it, absolutely as far as its powers of understanding permit. This is true of all the vast range of the problems which twine around our lives; the problem of **fear**, petty and awful, of **authority**, both the swaying exercise of it, and subjection to it—and our seeking it; of **ambition**, the pursuit of fulfilment of our lives in success and the applause of the world; and of the **frustration** we suffer when we cannot achieve our goal; of **attachment** in relationship to people, with the void when we feel let down, forsaken,the aching loneliness; of **love** and **hate**, **marriage** and **sex** and **parenthood**,and all the complications in which we involve ourselves along this road; of **jealousy** and **envy**; and all the train of the situations which are the woof and warp of most of our lives. There needs an intense exploration widely and deeply, of all this, with the maximum of penetration that the canscious mind can bring. It must be clear that this is not to be a merely intellectual dissection, a translation from one word into another, on the level of mere word-play, or verbal logic. Nothing would then happen to further real self-knowledge. That this last is the beginning and the end of the quest needs always to be very clear. All discussions will then be motivated, in all those taking part, by this quest, which means by the awakened desire for self-discovery. If this is clear, there will be no sense of obligation, of some imposed 'ought' nor will there be any tendency to escape into word-play.

(2) **The unconsciousness is active.**

When the conscious mind has thus played its part, it is quiet. The

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intelligent pursuit of self-knowledge will then be based upon clear understanding that the unconscious in ourselves is a living part of us—and with often greater potency than consciousness, so that in ignorance of it we are driven, lived by what is hidden, rather than by the conscious mind. It is well to know also that all psychological contents submerged in the unconsciousness tend to be contaminated with others. One aspect merges with another, and the confusion influences consciousness. The whole of consciousness, unconscious as well as conscious, is organically alive and if we were to observe it, objectively, dispassionately, we could find out that through the stress and strain of the conflict and tensions that wrack us, there is discoverable a tendency towards a resolution of it all. These processes usually go on in the unconscious and are not joined to consciousness; and in the critical stress of a tormentuous tension as C.G. Jung has pointed out, some symbol could be discovered expressing this movement towards harmonising the contradictory pulls. But all this remains a shadow play of symbol unless the conscious mind comes into the picture and the whole significance is integrated into consciousness. To him who has capacity, these symbols may find expression in some outer form, as a work of art, literary, visual, plastic or even musical. But still it was the product of that state of tension. And in fact, the true challenge and possibility from such a moment is not a release through expression, whether with great or little capacity, but the opening up of the whole state of conflict, digging into ourselves, or better, letting the issue unfold itself to consciousness.

Where the conscious mind actively puts life, energy, into exploring its own problems, disturbances and satisfactions, then it can await, and with confidence, the cooperation of its own deeper layers, of the unconscious mind. The latter cooperates in a movement to expose itself. Then, a dynamic process is set into motion wherein the conscious mind can discover, even in waking hours aspects of itself hovering in the background and on the borders of itself, aspects which had formerly remained hidden. If we are very alert, we can also see ourselves exposed to our selves in our actions and omissions, in our gestures, and our resistances. All our senses will convey to us the message of ourselves The penetration needs to be increasingly deep, not repeatedly seeing only the outermost expression of any problem, but as already mentioned, pushing it back into its hidden depths and roots in the causes and influences from which the final expressions are springing. This calls for and intensity of dwelling with a problem, to probe it to its core.

It is vital and rational for the waking mind to go thus to its limit in awareness. But, in self-discovery, especially at its beginning, there will also be communications from the unconscious during sleep, as dreams. When the surface mind has quietened down, those deeper parts of ourselves, never asleep, push forward messages which the noisy hours of the day may have thrust aside. And, indeed it often appears that the more

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waking conscious is alert in self-awareness, the more the deeper mind cooperates, in and out of sleep. Thus, during the day it may be impossible to give full attention to repercussions in ourselves of some outer challenge; but the deeper mind cooperates and holds for us in readiness for the moment when that inner attention becomes possible. This is an inestimable help, for it is this active alertness during the waking hours that it is wisest to cultivate, listening to everything, from outside and inside. But even then, there will often be dreams. That same intelligence would want to understand their messages also, to understand every movement of itself. But our dreams are in the language of pictures and symbols. The knotty question is therefore, met: how to interpret this strange language. Once more the various theories about interpretation may be and are best avoided. The mind may confront the dream as a drama portraying something of itself where there is no programme,nor is the theme already known. But out of its approach of enquiry, the mind may readily be able to recognise the significance of certain of the pictures as aspects of itself, of its attitudes It may observe with special care the psychological quality or condition of the player who represents the dreamer's conscious mind, the figure he knows. Then, having looked at the parts, the conscious mind can only be still and let the drame-picture speak as a whole. There is then the possibility of the whole delivering up its whole message.

(3) **Conscious and Unconscious balancing.**

The conscious and the unconscious are not, however, separate and distinct from each other; they merge imperceptibly and constitute in fact the whole consciousness. The whole is that life which is ourselves.though only part is fully known to us, above the surface of the mind, and the much greater part is in its hidden reaches. But it functions as a whole, and any movement to imbalance in conscious attitude is compensated by a move in the opposite direction in the unconscious, and proportionately, like the awing of a pendulum. Thus, a conscious attitude which is too little, depressed or deflated,is offset by an unconscious degree of bigness, elation or inflation. And contrariwise, a hidden inferiority is offset, and so appears in the conscious personality, as a superiority, swagger,inflation. White outside, black inside; black outside and white inside. But black and white are both expressions of extremes in human qualities.There is not only the tendency to swing from one extreme to another—from one position to its extreme opposite. Indeed, as can be seen, this is perhaps another aspect of that very pendulum like, or balance-like, characteristic of the human psyche in its inherent functioning.In actual experience it is well to be vigilant in watching for this movement of reaction from one attitude to its opposite; for this opposite psychologically is not a change from the original position, but inherently is the same. Thus, in reacting against drunkeness, the subjection to the habit of consuming alcohol,the teetotler has not freed himself from the fascination and power over him

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of alcohol. The teetotler's life is still dominated by alcohol, in the very fact of his attitude of total denial. In our many habits and attitudes we also falsely imagine that by reacting into the complete opposite we are fere. But the opposite is an equal opposite;we are not free.

Life is a mirror-

Wherever an outside stimulus calls forth a reaction which is charged with emotion in us,then that stimulus is striking an answering chord in us, setting something similar in ourselves vibrating.If the intention to self-knowledge is real,the concern will then be not to criticise or attack,nor even to praise and admire the outside source of the stimulus, be it object,idea,or person, but to explore the whole content of this aspect of ourselves which has been exposed by our reaction. This is to know life as a mirror to ourselves,all our relationships, whether to the inanimate or animate. If life is so lived,none is wasted in fruitless encounter, argument, anger with outer events or people; nor in vain efforts to change the outer so as to avoid an emotional fire being thus roused in ourselves.Rather, will the interest turn upon the source of the fire within, and the concern be for change in ourselves through this turning of the light of awareness upon corners which had hitherto been closetted in darkness.

Life will also mirror us to ourselves if we can see ourselvee as innerly, psychologically, involved in every situation in which we find ourselves outwardly and physically. If we can ask the question: ;why am I involved in this?' there may come surprising and lIluminating unfoldment. Something within myself must correspond to the whole situation and therefore I am involved in it.If one can at least see that,and pose the question 'why',light may be thrown upon some dark corner of the self, though that light may not, or not always,come in a direct answer.But the whole process of knowing oneself in such questions and awareness becomes an integral understanding of life, as we are active, and it is not a process of seclusion or withdrwal into a corner of self-absorption.

(5) Observe Resistances:

A resistance to a conscious attitude from the deeper in ourselves may be something which we would do well to respect; or,on the other hand.it may reveal another side of oneself, contradicting and trying to inhibit some attitude of consciousness which is itself truer. It is, therefore, very necessary to observe resistances and to find out in ourselves the basis of the conflict, from what it springs and what it signifies. The unconscious content is neither truer nor falser than consciousness. It fills out the picture of oneself at any moment. It is a fact, however, that often the surface mind may be very rigid and the deeper background of the mind may be more receptive, especially to something new. For one who wants to know himself truly, therefore, and not to be tripped up by the appearance of the surface mind, it is a good maxim to say to oneself, 'it depends how I feel', and to observe deeply and with subtlety, movements from the unconscious which are at variance with the surface mind.

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6 Change

The quintessence of the whole matter, then is how to listen to, and how to understand, all that we hear by day as well as by night, and how there may come about fundamental transformation in it. It is well-known that there are various theories to label and interpret what we experience. But should we not enquire somewhat profoundly into this whole question of interpreting of the mind by the mind ? Because this consciousness is one inter-related function, without clear separation anywhere, and also not separated into distinct conscious and unconscious, how could it be that out of itself and entirely within its own functions it could solve its own problems, and bring forth something wholly new ? The conscious cannot separate itself off, and free of influence, clearly interpret, penetrate, the unconscious and bring about a wholly new quality into its own being. And the challenge which has set us upon the quest for self-knowledge is so immediate, so inescapable in this middle Twentieth Century that it must be evident that partial changes, small modifications, touchings-up of our old condition would all be wholly inadequate in response. A change in the very foundation of our thinking, feeling, in our whole living is assuredly demanded. The question confronting us, therefore, is not less than how, by what approach, could such a fundamental change be made possible.

From this point of view, it would not be enough to dive, as it were equipped with aqua lungs, into the depths of our unconscious, there to encounter buried wrecks of fabulous fascination, wrecks of ships which once had sailed the surface seas of our minds, or the minds of our forefathers of ages past. To discover as we could, such remnant in our selves of our national, and racial heritage, of our primitive forefathers themselves, to make contact again with all that in our selves, and to plunge into it once more in absorbed fascination, would not be the answer to our own problems nor our childrens' nor to the world's need. To establish again a real contact with all this which lays submerged in the hidden mind, is unquestionably vital. But not to contact alone. These contents may have their alluring quality, the layers in ourselves far other than the appearances and world on the surface of our living. But the real psychological, educational, and indeed spiritual, need is such that it is necessary to keep the vast challenge always before us. It is surely not less than the need for a new generation of men and women, who will have a whole and integrated comprehension of human livings who will be able to, and will, ask fundamental questions: 'what is it all about' ? 'Why this world divided against itself and Man's incredible in humanity to man; Man alone among the higher animals want only killing his own kind ?' It is not abundantly clear that something in the way of a new quality of human being is needed ? And if so, there can clearly be no resting with the fascination of more symbols. How, then, can the vital change which is needed come about ? It must be something of the nature of a veritable

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psychological 'mutation' one might say.

It would seem first of all necessary to see clearly that the mind actively working upon itself connot renew itself. If that is completely recognised, then it is obviously useless for the mind to approach its own problems with any attitude whatsoever, be it ceriticism. appreciation, excuse, explanation, interpretation, nor even an attitude of driving desire to slove the problems, or to change itself. For all of these are obviously aspects of activity in the kaleidoscopic mind which, in all the aspects together, is the self we know. It is in confusion, contradiction. disturbance, and obviously every movent it makes, or action it takes, will have these same qualitites—and not clarity, nor newness. It this dilemma, what can the mind do ? Obviously nothing is left to it but to approach itself merely by looking, being aware of itself, its problem. By looking thus, by directly confronting itself, what it looks at does change. This we can each discover by experimenting for ourselves. Fortunately for us, we can indeed discover such a possibility. Otherwise, we should be confronting a stalemane; and instead of the human mind being the possible growing point of evolution, we should experience it as a dead-end. In fact, a directly empirical approach can test and find out that if the mind as we know it is simply, but directly and clearly, aware of some aspect of itself (the vast accumulation of buried hopes and fears, anxieties, traditions, conclusions and conventions etc.) but then, recognising its own limitations, does not stir in any attempt to act upon or change what it is aware of, then in fact there is a change. Is not the mind which has thus freed itself of activity, and is silently observing itself, is not such a mind already, in a new condition, radically different from the former condition of fretful self-centred activity, centred about the self and limited by the self? By seeing the futility of actions upon itself out of this centre, is not the mind in this moment free of the centre and all the conscious and unconscious background which this implies ? And, no longer confined within the limitation of the field of the self, is not the mind itself without limit? This new mind, as we might truly call it, is thus bringing into play a field beyond the narrowness of the ordinary mind limited to the self and its concerns.

As things are, the energy consumed by the buried parts of ourselves, the activated ghosts of time-past, combined with the energy demands of the body and of our practical and intellectual affairs, leave little or none for creative expression at any level. But the whole imbalance of this is changed by the act of the mind's ending its outpouring of energy in incessant movement around the self. This movement is not easy to bring to an end, even for a moment. There is the inherent tendency of the mind to move endlessly in this way. But if it happens that this movement is stilled because there has come the recognition that the mind is helpless to bring some complete newness to itself, then a store of energy is freed to flow into new and creative channels. This energy, is set free from the

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whirl of the self, and all its background of memories and knowledge (and, in the moment of total stillness free too from practical or intellectual demands). Life is set free. A new quality of mind, a new mind, clear and fresh and vital, capable of real creativity has come into being with the stillness: Its whole energy free and yet poised, held, it has at once great clearity and great potency. Out of this mind, clear and strong expression of action can come : innerly in the immediate moment, but outwardly when the time for that comes. It is also open to receive that which is beyond itself, as it will discover.

The beauty of this approach, opened up for us by J. Krishnamurti ,[1] is that the end can be, and indeed must be in the beginning. From the beginning it is possible and necessary for the mind to apprach its own accumulation, with the freshness of silent, clear, vital awareness—simply seeing, bringing to it no burden of interpretation, (which would be bringing not newness but the past to the past), no demand, and no searching or striving towards a goal. The mind is silent, but alert and vigilant not to fool itself by its tricks and manoeuvres. This new quality of silently observing would then begin to operate, as any one could readily discover. Out of the awareness there may come to consciousness a flash of wide understanding.Even without such a flash,the change works in the unconscious if the mind is truly open, listening to its own murmurings. In any case, the understanding and change are in the depth of the situations in conscious and unconscious at the moment, and in no sense a tracing to a cause back in time. Indeed, the understanding which comes to the mind in such a state is in no sense the product of time at all neither analysis back into chronological time, nor gradual accumulation of ideas taking time. Moreover, if the mind were in such a manner aware of itself, it would have the quality of being aware, as it were, from outside of itself. It might thus see the whole working of the mind in the self-centered activity,as the central problem from which all other problems emanate. If and when it did so, there would be the possibility of solving the many problems in terms of this one crux of the whole psychological issues. For such a mind, there is no separation between inner seeing and outer seeing. It perceives totally. Because it is free not bogged down in whirlpools of its complexes, nor even the activity of rational deductive thought, it can perceive the so-called outer moving with the so called inner, often in striking syncronicity--even as C.G. Jung has observed.The mind would be aware of its own functioning, but the silence would bring to it also an extensive awareness of the whole context of its being, of nature, society, of the individual neighbour. Such awareness therefore, could not become a mere morbid introspection, an incr-

1. See "First and Last Freedom" (Gollancz 1954) on:-Self-knowledge : Awareness. The function of the Mind.Self-centered Activity:On the Conscious and Unconscious Mind And "Commentaries on Living" (Gollancz 1956) on :-Awareness .The Conscious and the Unconscious : Thought & Consciousness.

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ease of the self-centered activity. Rather it could become increasingly aware of the narrow limitations of that activity; how it excludes and cuts individual off from the whole stream of life. And such awareness would wear away those limitations until the mind became vaster, its compass extended; veritably a new mind with wide-flung frontiers, or no frontiers. To such a mind, in constant change, constant renewal, life becomes an immediate absorbing interest. The awareness of itself in utter honesty is hard work; but if that is undertaken, the consequence is an emerging sensitivity and discovery of life, as it could never be known to the mind imprisoned by its own self-absorption. There is no searching, no goal. The fulness of living is here and now. Such living is its own joy. Such individuals there must be amongst men and women everywhere, especially these who are in contact with the next generation.

The Author acknowledges with deep gratitude her indebtedness to J. Krishnamurti's penetrating insight into the human mind and beyond it, and to the wide explorations C.G. Jung into the collective unconscious and its symbolism. She naturally takes complete responsibility, however, for every thing expressed here.

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PROJECT PROMETHEUS AND KRISHNA

OLIVER L. REISER

AT the ACCRA Assembly, meeting in Ghana from 21st—28th June, 1962, devoted to discussions of "The World Without the Bomb," a proposal designated as *PROJECT PROMETHEUS* was outlined by Julie Medlock and Oliver L. Reiser. Here a plan was presented looking toward the construction and orbiting of a global communications satellite to be owned collectively by the peoples of the earth, therby serving as a common symbol of the unity of mankind, the planetary species. This "Project Prometheus" is presented in visual form as **Diagram I.**

In the words of the official document, this was the theory of the proposal:

> "That the United Nations invite and authorize the USA and the USSR jointly to construct and orbit a communications satellite, to be known as **Prometheus**,—a global radio and television satellite to be owned and paid for, perhaps at least partly by popular subscription, by the peoples of the earth."

The explanation for the proposal was as follows:

> "Mankind is now moving into the era of the conquest of outer space, communications satellites, controlled thermonuclear energy, electronic computers, automation in industry controlled photo-synthesis, and many other revolutionary developments. The benefits of such discoveries in science and technology should be available for welfare of the entire human race. It is unthinkable,for example,that the varied opportunities opened up by the advent of communications satellites should be limited only to those nations which can afford to pay for commercial services.This would be missing the unprecedented opportunities for cultivating world good will and understanding.All humanity has a stake in the potentialities of such novel and revolutionary developments."

In the official document it was then proposed that the programming for **Prometheus** be supervised by an international committee of scholars responsible to UNESCO,and that these programs be used for world-wide public education, disseminating impartial information on methods and techniques for world objectives and ideals.

Here—it was suggested—is one place where international cooperation is possible, without creating tensions and rivalries. If the USSR is unable to collaborate, the U.S. could supply (not donate) the satellite to the United Nations—thus bringing fire and light from the heavens above to the billions of people of the earth.

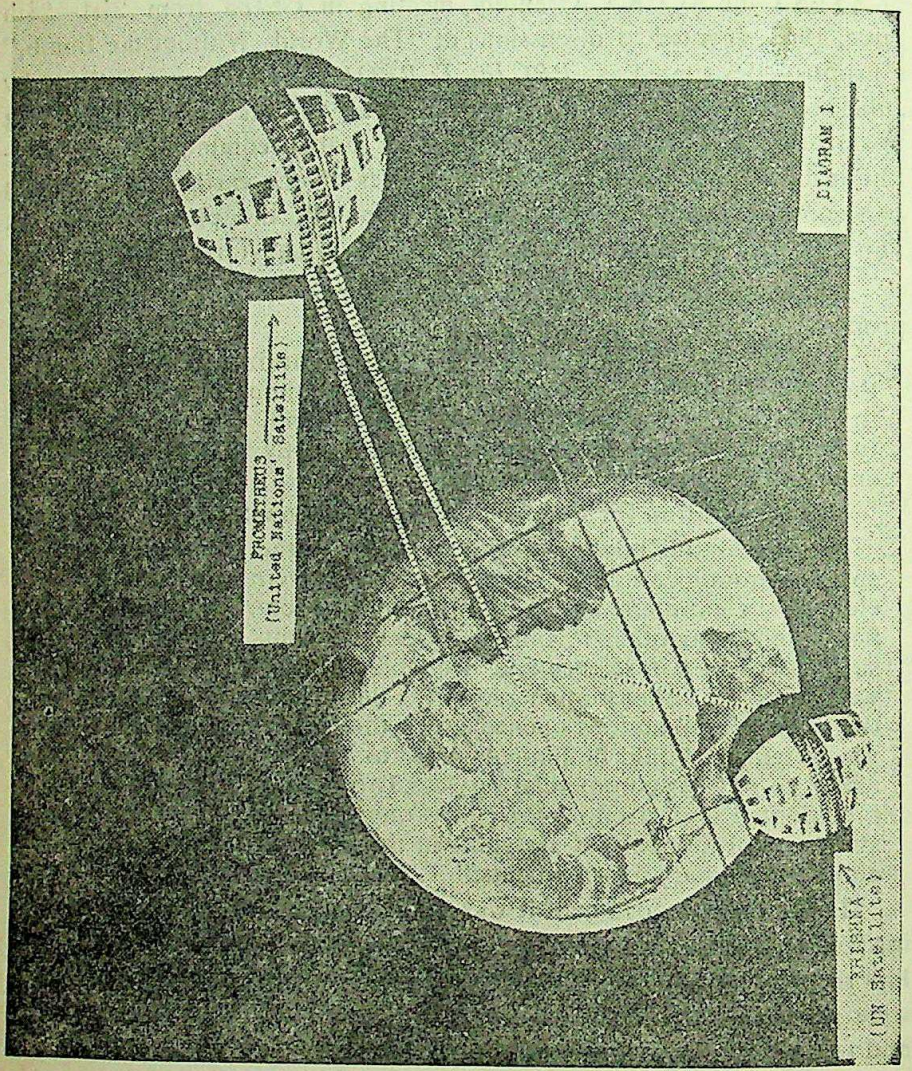
This proposal elicited a number of favorable comments. My letter to the *Saturday Review* (October 27, 1962, p. 25), calling attention to

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this Project, brought forth inquiries for more information about the proposal. Meantime, my own ideas about the possibilities of using the skies above for global communication and improved world understanding did not remain static. It is my purpose here to outline these further dovelopments.

Those who are familiar with these matters know that any satellite which approximates the orbit of **Telstar** would be limited in time to



about 20 minutes per day (for each orbit of the earth), and even this broadcast period would be available to peoples within limited geographical areas. This places severe limitations upon the proposed uses of **Prometheus**, especially since this satellite is designed to serve all the nations of the earth—Asia and Africa no less than the nations of the Western World.

One way to avoid this difficulty is to have several satellites in orbit

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at a distance of 22,300 miles above the earth. At this distance (height above the earth's surface), the orbital speed of the satellites would be synchronous with the earth's period of rotation, i.e., the satellites would remain at the same location over the rotating earth. Ideally three satellites would be required to create a global relay system, with one over the Atlantic,another over the Indian, and a third over the Pacific Ocean; and in that manner the synchronous system could continuously send out programs to any points on the earth except the poles. Indeed, this is planned by NASA.

But because of the added expense, and for another reason which will be made clear in a moment, the present extension of the UN satellite project calls for two communications satellites to be placed in orbit as strategically as possible in order to reach the maximum number of peoples of the Eastern and Western hemispheres.

The second satellite would be placed somewhere over Asia. As a companion satellite, named **Krishna** for reasons of historical symbolism, it would share with Prometheus the task of making available to the world the traditions, achievements, and ideals of the other half of the world.[1] It would involve a considerable oversimplification to say that **Krishna**, symbolizing the religions, arts, and philosophies of the East, hovering over the Atlantic Ocean, could communicate to Europe and the Americas the substance and spirit of Oriental cultures, the ancient East; while **Prometheus**, hovering over the Oriental world, could bring to the East the sciences and technologies of the West—the mastery over the external environment. Together they would cover the earth with two radiation belts of thought, and in that respect be comparable to the Van Allen radiation belts (see **Diagram II.**).[2] In a sense, these two global satellites could be personification of the "yang" and "yin" of ancient Chinese tradition. Presumably, one could exploit this male-female analogy still further—perhaps somewhat after the fashion of Professor Northrop's **aesthetic** and **theoretic** components. Beyond that,one could also conceive of the introduction of "teaching machines" in **Prometheus** and **Krishna** for the speeding up of the education of the underdeveloped peoples of the earth. There just simply is not any more time in our rapidly changing world for the slow processes of education—we must get rid of illite-

1. The practical consequence of nuclear fission was the atom bomb, bursting into a blinding radiance so intense that Dr. Robert Oppenheimer--witnessing the explosion and recalling his studies of the BHAGAVAD GITA---was led to exclaim: 'It was as if it were the glory of a thousand suns.' This quotation of Arjuna in praise of Krishna suggests that to the physicist the terrific white light produced by the splitting of atoms of the bomb is like pure spirit escaping into matter. Another savant, more given to the uses of Occidental imagery, would perhaps have thought of this as like the legend of Prometheus drawing the energy of fire and light from the heavens for the weal or woe of mankind. But then we have already given PROMETHEUS a job to do, complementary to that of KRISHNA.
2. This idea was first outlined in my article, 'The Radiation Belts of Thought, 'published in DARSHANA. Vol; II, 1962 (Oct.), 100-127.

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racy within a generation, if we are not to lose the battle of man.

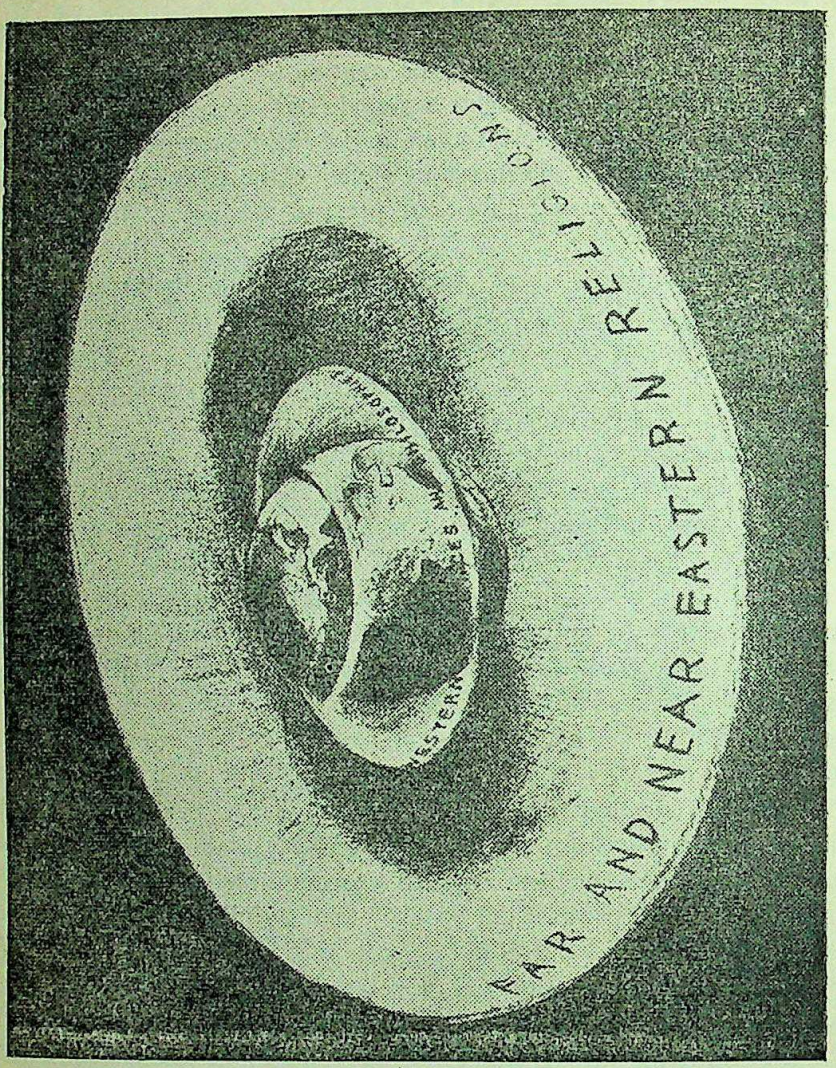


Diagram II

The foregoing exploratory probes into the future inevitably lead to the suggestion that the world needs one universal language for global communication and understanding. This "one language for one world" might well utilize the *Semantography* which was perfected by C.K. Bliss in Australia. Such issues, however, are not among the initial problems to be faced, which are primarily practical in nature.

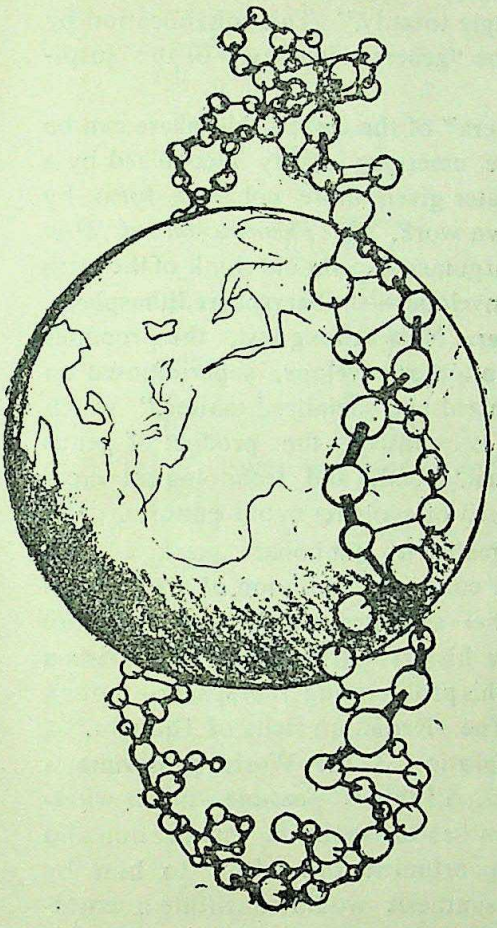
These fragmentary suggestions are sketchy in nature; but they do hint at the breathless and awesome possibilities opened up by the new technologies. If the United Nations satellites were synchronized to the revolution of the earth, each could broadcast to its own hemisphere the radio and television programs woven around the key personalities, possibly as I have previewed them in **Diagram III** In this manner a good part of the planet would be covered: we would "put a girdle 'round the earth"—as

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Shakespeare foresaw—eventually to bind the members of human family into the form of unity. All this, of course,would have to be approved by a UNESCO committee of world scholars, still to be appointed.

The East-West Radiation Belts Of Thought



West	East (far & near)
Thales	Krishna
Pythagoras	Akhenaton
Anaximander	Moses
Empedacles	Zoroaster
Democritus	Buddha
Socrates	Mahavira
Plato	Confucius
Aristotle	Shankara
Euclid	Ramananda
Archimedes	Lao Tze
Ptolemy	Patanjali
Galileo	Jesus Christ
Kepler	Mohammed
Copernicus	Baha'u'llah
Newton	Tagore
Darwin	Gandhi
Marx	Bhave
Freud	Sri Aurobindo
Einstein	Radhakrishnan

Diagram III —*By* **William Caldwell**

One may well inquire,what is the end-result of this tremendous straining toward world communion and unity?The briefest answer may be that this is the only foreseeable way of avoiding world chaos.Somewhere, sometime, somehow, we humans will perforce find a way to send up a flag (satellite) around which the whole world can rally—else we descend downward and deathward toward collective insanity and mass suicide.It is not possible here to recapitulate the argument as set forth in my essay. "The Integration of knowledge as a Basis for a General Ideology,"which appears in the volume **The Humanist Frame**(1962),edited by Sir Jul au Huxley.It should be noted, however, that my plea for a World Philosophy ("general ideology") to serve as the guiding field for man's future conscious evolution is not the voice of a solitary figure crying out in the wilderness. My own first motivations where inspired in part by that dreamer of utopias,Mr H.G. wells, whose treatise on **The World Brain**(1938)pain-

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ted a compelling Picture of the job that needs to be done. Beyond that and somewhat later,the article by W.I.Vernadsky[3] called attention to the same process of social synthesis. **"whereby mankind became a single totality in the life of the earth"**—this, be it noted, "in the interest of freely thinking humanity as a single totality." This qualification by the Russian scientist should relieve the "general ideology" of the suspicion of "totalitarianism."

In this fashion the "psychozoic era" of the earth's **biosphere** can be transformed into the *Nooesphere*, the emerging reality recognized by a French mathematician in 1927 and later given more coherent form by Tielhard de Chardin in his well-known work, *The Phenomenon of Man* (Eng trans.,1959).According to the argument,we should think of the earth as a sequence of spherical shells or envelopes—the **barysphere, lithosphere, hydrosphere, atmosphere**, and **biosphere**. Now at long last, the processes of cultural evolution have generated another envelope, superimposed on the biosphere, i.e. a "sheet of humanized and socialized matter," which is the *nooesphere*. This new envelope is exclusively the product of genus *Homo*, and embraces man's intellectual, social, and technological creations—in short, the **ensemble** composed of evolving man's cultures.

This concept and the emerging reality it symbolizes mark a great advance in human development. The continued evolution of man will be considerably accelerated by the global satellites which even now are coming over the horizon of planetary history. **Prometheus** and **Krishna** may well symbolize and adumbrate this proliferating *Nooesphere*—though for reasons given in my article on "The Radiation Belts of Thought," I prefer to designate this organ of integration as the **World Sensorium**, a term I have employed for many years. All this is possible—under whatever rubrics we prefer—provided man has the requisite imagination and will to discern and grasp the great opportunities opened up to him by his new technologies. This emergent synthesis would constitute a world-wisdom for mankind, surely a consummation devoutly to be sought.

We have already made the point that the programming for the planetary satellites will stress cultural and educational projects. The"brains" behind the programming for the impartial dissemination of information and the integration of knowledge might well be constituted of the members ("cortical neurons") of a World University (see Diagram IV).

One immediate project could be the "Voice of World Science" program (Diagram IV).Ultimately—before the 20th century is over—it might be feasible to activate the "Voice of World Philosophy," disseminating what could be called a **Cosmic Humanism.** The institution of a world federation might properly represent one of the more remote goals. Meantime, world-wide public education, explaining the methods and techniques for the implementation of presently accepted planetary ideals and

3 Cf. 'The Biosphere and the Nooesphere', by W.I. Vernadsky, 'American Scientist'. Vol. 33; 1954, pp. 1-12.

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objectives, would constitute one practical goal of Project Prometheus-Krishna, thus providing some creative release for the mounting tensions

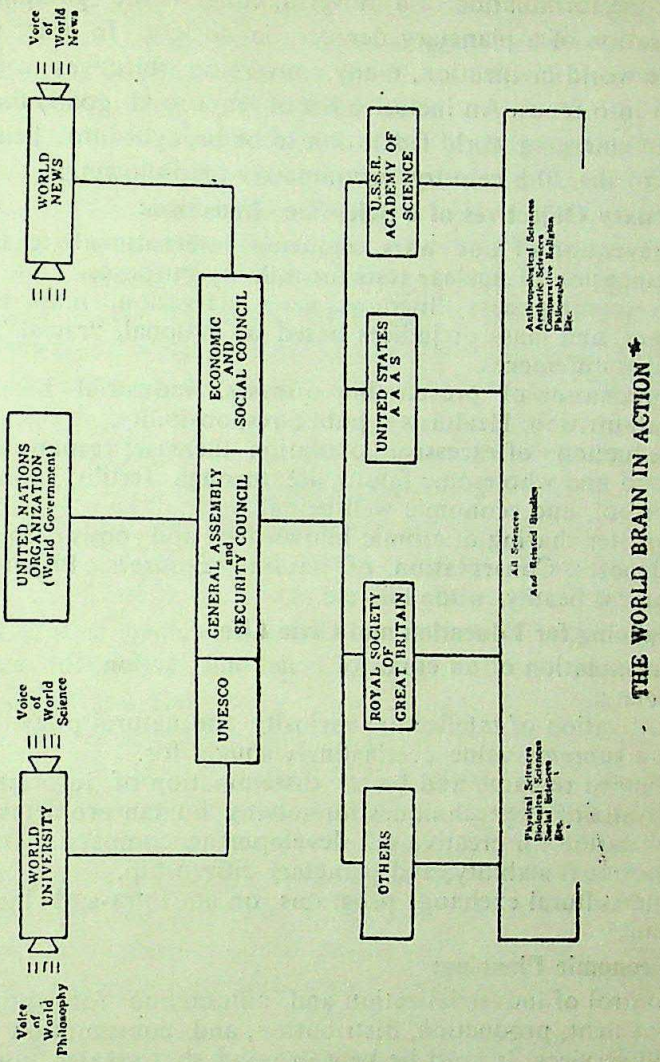


Diagram IV

*** From The Integration of Human Knowledge**
By Oliver L. Reiser (Porter Sargent, Boston, 1958)

of the anxiety-ridden millions of human beings milling about on the surface of the earth.

Background on which Satellite Communication could be based: the guiding field for an emerging Planetary Society

It is the purpose that galvanizes men into action. Therefore, the secret of a happy world and an enduring peace must be a worthy social purpose—let us say a planetary purpose. Scientific humanism is permeative in spirit. It is concerned with unifying the integrative tendencies already in existence. Its function is cohesive. Its instrument is education. Its goal is cosmic.

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As a "philosophical technology" which supplements the established technologies of industry and medicine, the scientific humanism projected will aim at the formulation of a universal ethics as the guiding field for the proliferation of a planetary democratic society. In order to achieve this mature world civilization, many converging objectives will have to be brought into focus. An inclusive list of envisaged goals, the minimal basis for an emerging world federation to be brought into being in the remainder of the 20th century, encompasses the following:

I. Primary Objectives of a Scientific Humanism:

(1) Prevention of hot wars, reducing international tensions, and suspension of nuclear tests for military purposes.

(2) Overcoming mass illiteracy, mass starvation, mass unemployment, and mass prejudices based on national, "racial", and religious differences.

(3) Elimination of preventable diseases, industrial hazards, and malnutrition. Health is a public responsibility.

(4) Reduction of excessive population increase; responsible parenthood and wholesome family life through fertility clinics, birth control, and economic well-being.

(5) Greater sharing of atomic knowledge and power for peaceful purposes. Conservation of natural resources. Preservation of natural beauty, wilde life, etc.

II. Planning for Education and Civic Life:

(1) Formulation of an ethics of belief and action for a planetary society.

(2) Cultivation of intellectual curiosity and natural piety, with truth as a supreme value everlastingly sought for.

(3) Planned research and better dissemination of information, universalizing the techniques for solving human problems.

(4) Education for creative self-development, compassionate thinking emotional stability, and planetary citizenship.

(5) Intercultural exchange programs on an intra-and international scale.

III. Economic Planning:

(1) Control of industrialization and automation for optimum employment, production, distribution, and consumption of goods and services. It must be kept in mind that greater consumption is not necessarily a goal in itself; it can lead to bad effects as Joseph Wood Krutch points out in his book, *Human Nature and the Human Condition.*

(2) Public Housing, with higher standards of living (including refrigeration, santitation, heating, etc)

(3) Reduction of tariff barriers and the development of international currency stabilization.

(4) Socialized insurance against unemployment, old age, etc.

(5) Socially owned and co-operative presses and publishing.

IV. Political Planning:

(1) World planning of public works programs : highways and tunnels connecting continents and nations.

(2) Dissemination of cultural achievements and facilities, with the products of humanistic activities made available on an increasingly broad base of enjoyment.

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(3) Raising the standards of appreciation in mass media entertainment (cinema, radio, television, etc.).
(4) Mobile loan collections and regional library facilities.
(5) Arts are not luxuries for the "intellectuals"; but arts are important parts of morally responsible actions which are necessary for creative self-development, social participation, and a source of proper pride in social achievements.

The foregoing list of objectives is comprehensive, integrative—and "utopian." But if it is possible to build an "inter-thinking" group of friendly peoples the world over, the foregoing program (or some mutually acceptable modification of it) is attainable. If men can voluntarily and co-operatively envisage the humanist frame for a world civilization based on a universalist ethics, we can transform the earth, its teeming populations, and man's place in the wider scheme. For example, an immediately attractive prospect for international co-operation-thus "reducing tensions" between "East" and "West"—arises from the growing psychosocial compulsion toward a "combined operations" program for exploring outer space, with a correlative drive toward supernational (global) space laws for artificial satellites and interplanetary space-ships and other extra-terrestrial conquests by man, the cosmic species. Already OZMA is reaching out in search of intelligent beings in other universes. Meantime, here on the earth type of ideological unification and social integration we have envisioned is essential if we are to preserve the best elements of our heritage of cultural diversities—indeed, if man is merely to survive.

If all the enlightened peoples of the world would close their ranks, would pool their strength, would raise with steady hands the oriflamme of faith in human intelligence, the enemies of humanity—those who are mutilaling and plowing under the truths of science and the highest social values—would come to an inevitable defeat in the parliament of man. Believing this, scientific humanism offers itself as an emerging philosophy of synthesis, a social lens to focus and unify human vision, thus giving coherent form to collective aspiartions and purposes.

Addendum

Of course, there will be practical problems to be solved. No satellites as now envisioned can broadcast radio or television directly to home receivers. This means that each nation must have its own internal distribution system, including necessary ground facilities for sending, and distributing the cultural and educational programs. In "backward" countries, where radio and television sets are rare, perhaps facilities for group audiences could be employed (churches, schools, and the like). These are practical and technical problems which can be overcome when the will and the money are mobilized. Also we will need to know more about the Van Allen radiation belt and the "radiation sickness" that can afflict communication satellites when we tamper with this belt.

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DECISION-MAKING AND INTELLIGENCE
A Research Project

ARTHUR LAPAN

THE research project I am here proposing assumes that thinking and the process of decision- making have one and the same structure. The decision-making process is a reflective process and thinking requires making decision. Ordinarily we think about precisely that— what we are to wear, to buy, etc., in short, about decisions we are to make. Even when we are thinking about matters which are not of immediate concern to us we have continuously to make decisions; we have to define our problem and decide what is central to it and what peripheral; we have to seek information and decide what is relevant; we have to decide how trustworthy the information is; we have to develop hypotheses and decide whether they are worth pursuing; we have to work out their implications and verify them and, on the basis of that, choose from among them. All this is decision-making.

Because of the equivalence between the reflective and the decision making process, practice and proficiency in the one should engender dispatch and proficiency in the other. This should be true of all aspects common to intelligence and decision-making. Thus, in thinking one has to consider what would occur if certain things were the case; we have to rehearse situations internally, as roles; and the same is true of decision-making. In day-to-day living we have to enter into the position of other people, we have to evaluate how they feel and how they will act, and to do this, we have to role-play. [1] Here, too, the processes of thinking and of decision-making are identical, and practice and skill in the one should engender skill and proficiency in the other.

We are assuming, too, in our research project that where adults are engaged in decision-making they will tend to become more proficient at it than if they were not so engaged and, by the same token, more intelligent; and, above all, that their childern will be. The reasons for this are as follows: where people make significant decisions they tend to value themselves and to be valued by others; they feel more alive and more active, which indeed they are, and therefore more joyous. (The opposite passivity, is accompanied by suffering and sadness.) Their children, too, will tend to identify with them to a greater extent, and to rehearse in play whatever pertains to their parents' role as decision-makers. The children will tend to value the decision-making process as they grow up, and to become proficient at it.

On the basis of these assumptions we should find that parents whose

1 George Herbert Meed, "Mind, Self and Society".

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occupations or activities involve a high degree of making significant decisions should have children who exhibit intelligence superior to that of children whose parents are not so engaged. Our project assumes that intelligence is in good measure an environmental function, and particularly a socio-economic and political one.

Of course, it may be argued that the more intelligent parents screen themselves out of the non-decision-making jobs, where job placement is to a considerable extent voluntary. In other words it may be urged that the less confident, less intelligent and lower self-imaged man will remain in a job situation offering less opportunity for decision-making, and not merely that the job climate changes the self-image. Any correlation found between intelligence and decision-making could then as easily be attributed to heredity as to differences in the economic, social, political and familial environment.

1. But if our assumptions are correct then it should prove that the children of workers in factories who participate in making decisions significant for the operation of those factories should have children who are more intelligent than the children of comparable workers who make no decisions in their plants. Traditionally, the employer (management) formulates decisions which are accepted and executed by the workers. But what happens when the workers participate in the decision effecting production ? How is the worker's image of himself effected ? Is there any appreciable difference in the intelligence of the children of such workers as ever against workers whose sole function is to accept and execute the decisions of management ? We should like to explore this question.

To do this we would like to study the relevant records of children of workers who, for a sufficient period of time, have participated in making decisions in their plants, and compare them with the records of the children of comparable workers who, for the same period, have merely received and executed decisions. Would such a study reveal differences in the intelligence of the two sets of children ? If so, could those differences then be explained in terms of the differences in the decision-making roles of the parents ?

Such an inquiry would (a) select plants which differ significantly in their decision-making processes, (b) select, if possible, those plants in which these differences have obtained for an adequate period of time, (c) define the term 'adequate' and the criteria for adequacy, (d) compare the traits of the workers which are presumably relevant to intelligence with an eye to their being comparable, (e) trace the school careers of the children of these sets of workers, (f) define the senses of the word 'intelligence' pertinent to our inquiry, (g) and, if possible, plants should be studied in which the same workers have operated under both systems of decision-making for adequate lengths of time and the histories of the children of these same workers compared, their histories when the wor-

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kers were operating under one type of decision-making process and when they were operating under the other. This would help us assess the effects of changes in the decision-making process.

2. If our assumptions are correct it should also prove that the children of economically, socially, politically or racially under-privileged parents who are active in alleviating their condition will, in the long run, be more intelligent than those of under privileged parents who are not thus active, since the former are involved in decision-making processes. To test the influence of the environmental factor, parents should be chosen as have, for an adequate period of time, **not** been active in combating their condition and who **then** have, for an adequate period of time, become genuinely involved. The histories of their children both before and during the period of their involvement should be studied with an eye to determining whether any positive changes in the intelligence of their children occurred. Other factors presumably pertinent to intelligence will have remained constant for the purpose of this study.

3. Children who are not allowed by their parents to make decision should be found to develop inferior intelligence. In general, wherever individuals or groups are deprived of the power to make decisions in significant areas, this should be found to adversely effect their intelligence and that of their children.

4. It would also be interesting to compare the intelligence of the children of farmers who live cooperatively and make decisions effecting their work with that of the children of farmers who work in comparable circumstances but do not make decisions. Where cooperatives differ in structure and motivation, they should be compared with one another. Since it may be very difficult to isolate the effect of decision-making upon intelligence here (the philosophy of farmers in cooperatives may be a significant factor, their education, etc.) these different cooperatives and farms should be studied as wholes and reasonable conclusions drawn.

5. In the light of our assumptions the children of executives should perform in a superior way at school, and

6. Superior students should choose extra-curricular activities whose processes are identical with the processes of reflection. For example, they will tend to participate in student councils, debating societies, drama groups, etc.

7. Children at school and in recreation who are encouraged to make decisions should, in the long run, develop superior intelligence.

8. A positive correlation should be found between decision-making and creativity. For example, a study of creative people (inventors, let us say) should disclose that their personalities lean more propouncedly toward non-conformity than toward conformity.

These are some of the consequences of our assumptions.

"This research project needs money and information for its prosecution. Anyone who can help in these particulars, please, write to : Dr. Arthur Lapan, 8866 Bay 16 th Street, Brooklyn 14, New York. U.S.A."

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OBITUARY NOTE

Prof. Albert E. Avey, Professor of Philosophy, Ohio State University, one of our great Contributors and admirers whose article 'The Chronology of Indian Philosophy' appeared in **Darshana** Vol. II, August 1962, Number 3 pp. 65-75 and another article 'How Exact is our knowledge of Early Greek Thought' will appear in Dr. S. Radhakrishnan Souvenir Volume, has passed away recently. He was a great Western Scholar who studied Indian Philosophy thoroughly. We are very sad on his death. We offer our heartfelt condolences to Mrs. Anna C. Avey (Mrs. A. E. Avey) and other members of the family.

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Managing Editor, Darshana International

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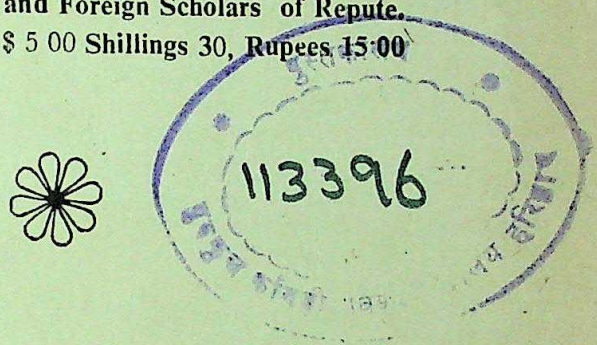
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